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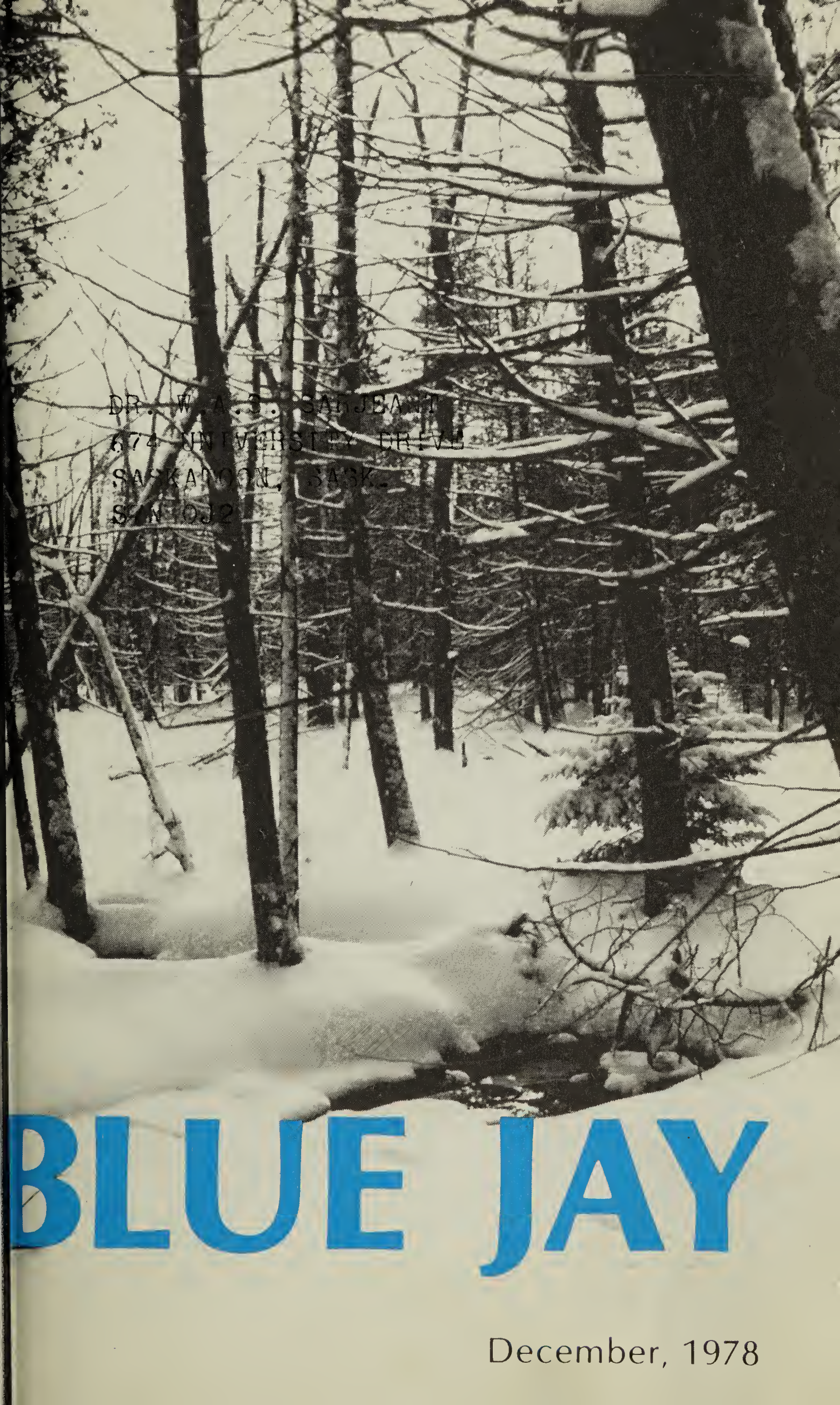




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# BLUE JAY

December, 1978



A JOURNAL OF NATURAL HISTORY AND CONSERVATION  
FOR SASKATCHEWAN AND ADJACENT REGIONS.

FOUNDED IN 1942 BY ISABEL M. PRIESTLY

Published quarterly by the Saskatchewan Natural History Society, Box 1784  
Saskatoon, Saskatchewan S7K 3S1. CN ISSN 0006-5099.

Editor: Gary W. Seib, 3625 Grassick Ave., Regina S4S 0Z3 Tel. (306) 584-9650.

Associate Editors: Margaret Belcher, J. Bernard Gollop, George F. Ledingham.

Editorial Assistants: Georgina Jackson, Shirley Jowsey, Barbara Shourounis.

Circulation: Jim Mundy.

All items for publication should be addressed to the editor at 3625 Grassick  
Ave., Regina, Saskatchewan S4S 0Z3. Deadline for material to be considered for  
the March issue is January 15, 1979.

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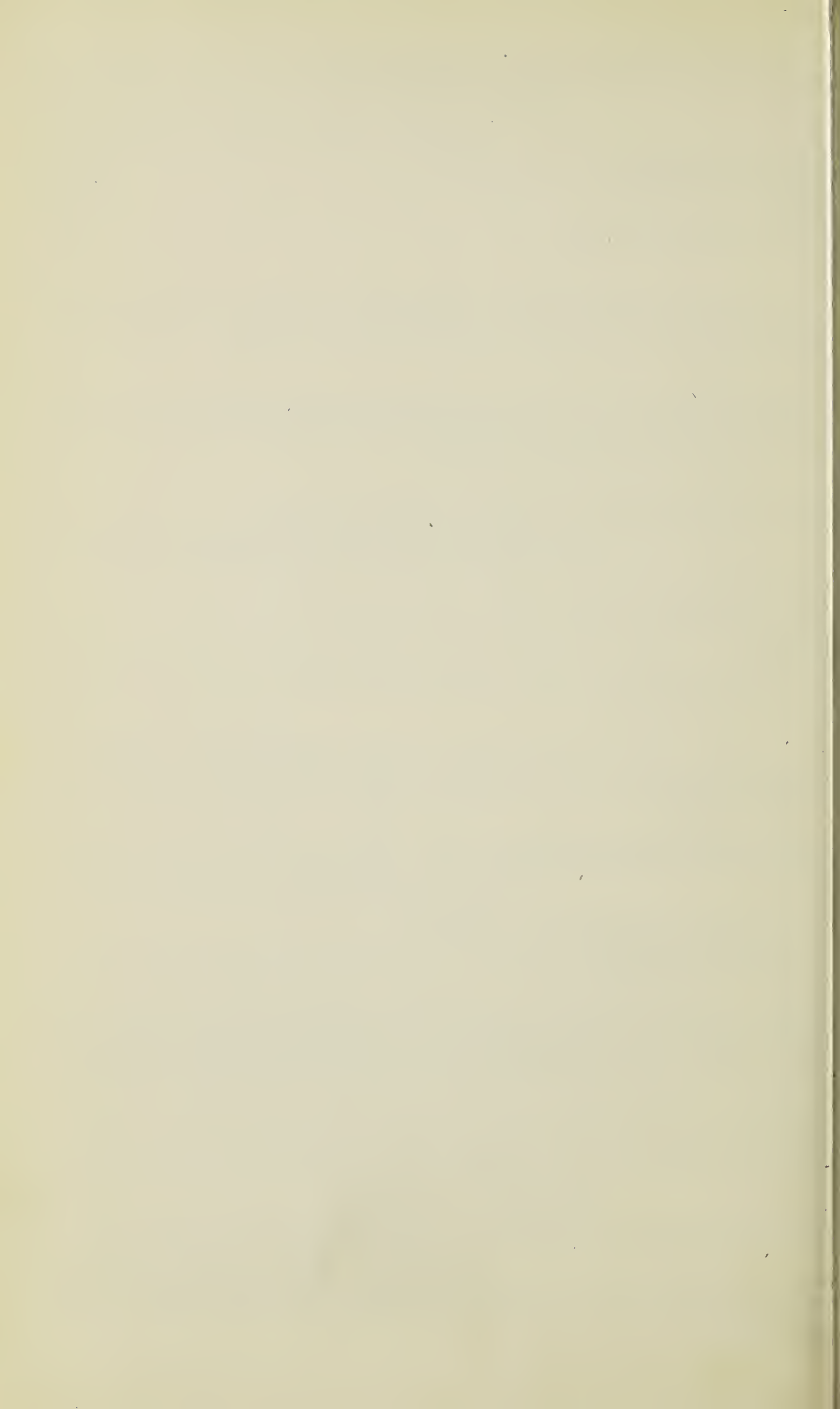
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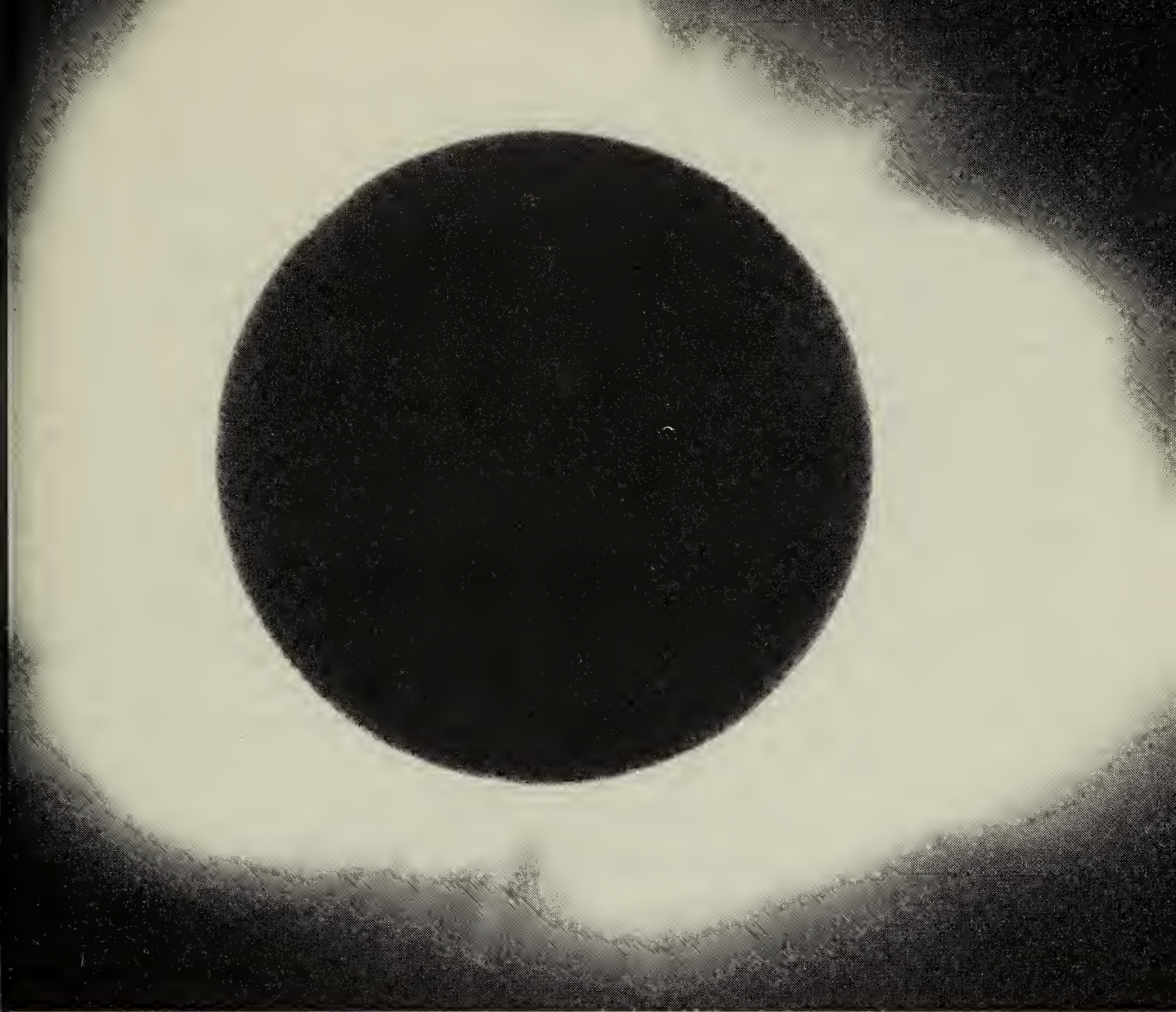
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*Hale Observatories*

## TOTAL SOLAR ECLIPSE

STANLEY J. SHADICK, 810 Main St., Saskatoon, Saskatchewan S7H 0K3

Persons living in southeastern Saskatchewan will have an opportunity this winter to witness a rare celestial phenomenon. A total eclipse of the sun will be visible on the morning of February 26, 1979. This is the last chance to witness a solar eclipse in Canada during this century. The next total eclipse visible in Canada will occur only in the High Arctic on August 1, 2008.

A total eclipse of the sun occurs at the time of a new moon whenever the moon passes directly between the earth and the sun and blocks out the

entire disk of the sun. A necessary condition for a total eclipse is that the apparent diameter of the moon be equal to or slightly larger than the apparent diameter of the sun as seen from earth. The orbit of the moon around the earth is not circular but elliptical so that when the moon is farthest from the earth, the apparent lunar diameter is slightly smaller than that of the sun. Should the moon pass directly between the earth and the sun at such a time, an outer ring of the solar disk will still be visible and the eclipse is then referred to as an an-

nular eclipse. On February 26 the moon will entirely block out the disk of the sun so the eclipse will be total.

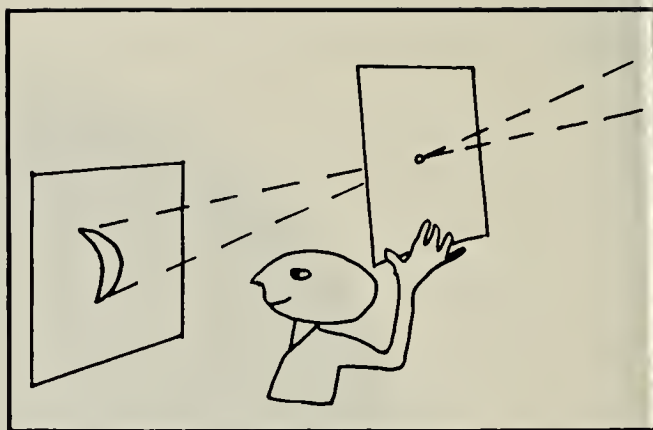
People often wonder why an eclipse of the sun does not occur at every new moon. The reason for this is that the moon's orbit around the earth is inclined at  $5^\circ$  to the ecliptic, which is the path of the sun across the heavens. For this reason the moon usually passes above or below the sun at new moon. An eclipse is only possible when the moon crosses or is very close to the ecliptic.

Just before and after totality, Bailey's beads become visible. These are individual points of light which skim through the lunar valleys. Between the beads, the sunlight is blocked by craters or mountains on the moon.

During totality the beautiful corona of the sun with its pearly white streamers will become visible. The corona is the tenuous but hot outer atmosphere of the sun. It is much fainter than the bright disk of the solar surface so it can only be observed during a total eclipse. Near the base of the corona bright red prominences may be visible. These are hot jets of hydrogen gas ejected from the surface of the sun.

A word of caution about observing eclipses. People can seriously damage their eyes if they look directly at the sun during the partial phase of the eclipse. As larger and larger bites are taken out of the sun, the total light from the sun will decrease. However, the surface intensity of the sun remains the same and it is this intensity which causes eye damage. Do not watch the sun through clouds as a sudden clearing could then cause eye damage. Sunglasses are not safe for direct viewing of the sun.

You may view the sun directly through two superimposed sheets of completely exposed and thoroughly



developed black-and-white film. Be very careful that there are no scratches in the film. Do not use colour film as it does not have enough metallic silver to reflect infrared radiation. A piece of No. 7 welder's glass which transmits only one 10-millionth of the incident sunlight is also suitable. The safest method is to construct a pin-hole camera as shown in the diagram. The rays from the eclipsed sun pass through a 5mm hole in a piece of cardboard. You may then observe the projected image on a paper screen.

During the brief period of totality you may view the totally eclipsed sun directly without filters.<sup>2</sup> However, be very careful to terminate direct viewing at or before the instant at which the outer rim of the sun appears from behind the moon.

It should be possible to see the brighter stars and planets during totality as the sky is then quite dark. The darkening sky is also said to have an effect on wildlife. Birds are often reported to head for their night roosts. You may want to keep notes on bird activities in your area.

The hatched region on the map indicates the part of Saskatchewan in which a total eclipse can be observed. The time of mid-eclipse along each hatch mark is given. Further north only a partial eclipse will be visible. Although the fraction of the sun eclipsed may not be very large, it will still not be possible to see the corona.



LOCAL CHARACTERISTICS

Times of Contact# (C.S.T.)

Location	First			Second			Third			Fourth			Time of Maximum Eclipse	Eclipse Magni- tude*
	h	m	s	h	m	s	h	m	s	h	m	s	h m s	
Estevan, Sask.	9	29	32	10	38	13	10	40	57	11	53	58	10 39 35	1.000
Moose Jaw, Sask.	9	29	32							11	51	34	10 38 23	0.990
Regina, Sask.	9	30	25							11	53	00	10 39 36	0.993
Saskatoon, Sask.	9	31	40							11	51	50	10 39 42	0.967
Brandon, Man.	9	33	26	10	42	56	10	45	47	11	59	07	10 44 21	1.000
Portage la Prairie, Man.	9	35	11	10	45	12	10	47	58	12	01	36	10 46 35	1.000
Winnipeg, Man.	9	36	20	10	47	00	10	49	16	12	03	23	10 48 08	1.000

First contact: Beginning of partial eclipse.

Second contact: Beginning of totality.

Third contact: End of totality.

Fourth contact: End of partial eclipse.

\*Fraction of sun's diameter obscured at maximum eclipse.

outside of the region where totality occurs. If you live near the path of totality you may want to drive there.

The accompanying table gives times of eclipse for various centres in Saskatchewan and Manitoba. It is taken from computer predictions by Fred Espenak.<sup>1</sup> You will note that totality lasts only 2½ minutes at Estevan and will be shorter near the northern limit of the path of totality. If you plan to take pictures you should be set up ahead of time. The position of the sun at maximum eclipse as viewed from Estevan will be at an altitude of 24° and an azimuth of 140°

(40° east of south).

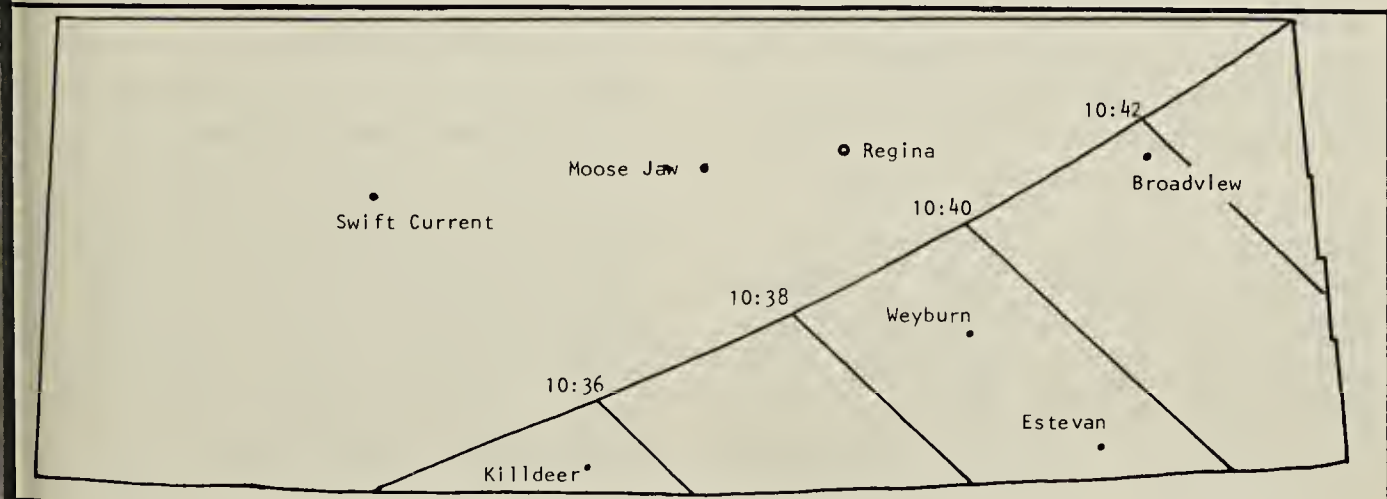
Good viewing!

ACKNOWLEDGEMENTS: I wish to thank Prof. Ed Kennedy and Mr. Gordon Patterson, Department of Physics, University of Saskatchewan for assistance with this article.

<sup>1</sup>ESPENAK, F. 1978. Predictions for the 1979 Solar Eclipse. Journal of the Royal Astronomical Society of Canada 72:149.

<sup>2</sup>HOGG, H. S. 1976. The Stars Belong to Everyone, Double Day, Toronto. 274 pp.

<sup>3</sup>Eclipse Bulletin No. 4. 1972. Saskatoon Centre, R.A.S.C.



# IN NORTHERN SKIES

ROSE McLAUGHLIN and MARY SKINNER, Indian Head, Saskatchewan S0G 2K0

Sunday morning, December 4, 1977 — calm, clear, and very cold after a furious all-night blizzard — will be remembered by many because of its brilliant sundogs and prismatically radiant solar halo. Prompt radio comment on this unusual display alerted viewers in Regina and surrounding areas; but few, it seems, noticed the spectacular sky show which peaked later in the day, in an area centering around Indian Head and Balcarres.

In Indian Head, people returning from church at 1:00 p.m. noticed two bright concentric solar halos, with sundogs of blazing brilliance which occurred where the halos were intersected by a luminous white line running through the sun parallel to the horizon. At the same time, other groups of people on the north side of town were startled to notice three large, luminous orbs, like ghostly moons, spaced out along a broad, ethereally delicate band of white light which curved around the northern sky, till lost from sight behind intervening trees and buildings.

Also around 1:00 p.m., sky watchers in the Qu'Appelle Valley and the Red Fox Valley, ten miles north and south of town respectively, saw the halos, sundogs, and luminous white line, but the eerily beautiful display in the northern sky was hidden from them by the valley rim.

At all these points, those who chanced to look overhead saw a spectrum crescent, like a shallow, inverted, and very radiant rainbow, with its red outer curve toward the sun and almost touching the upper rim of the outer halo. Its arc, if extended, would appear to encircle the zenith.

One final observation: as the sun swung westward and sank lower, the whole formation moved accordingly. This was around 2:00 p.m. when the spectacle began to disintegrate.

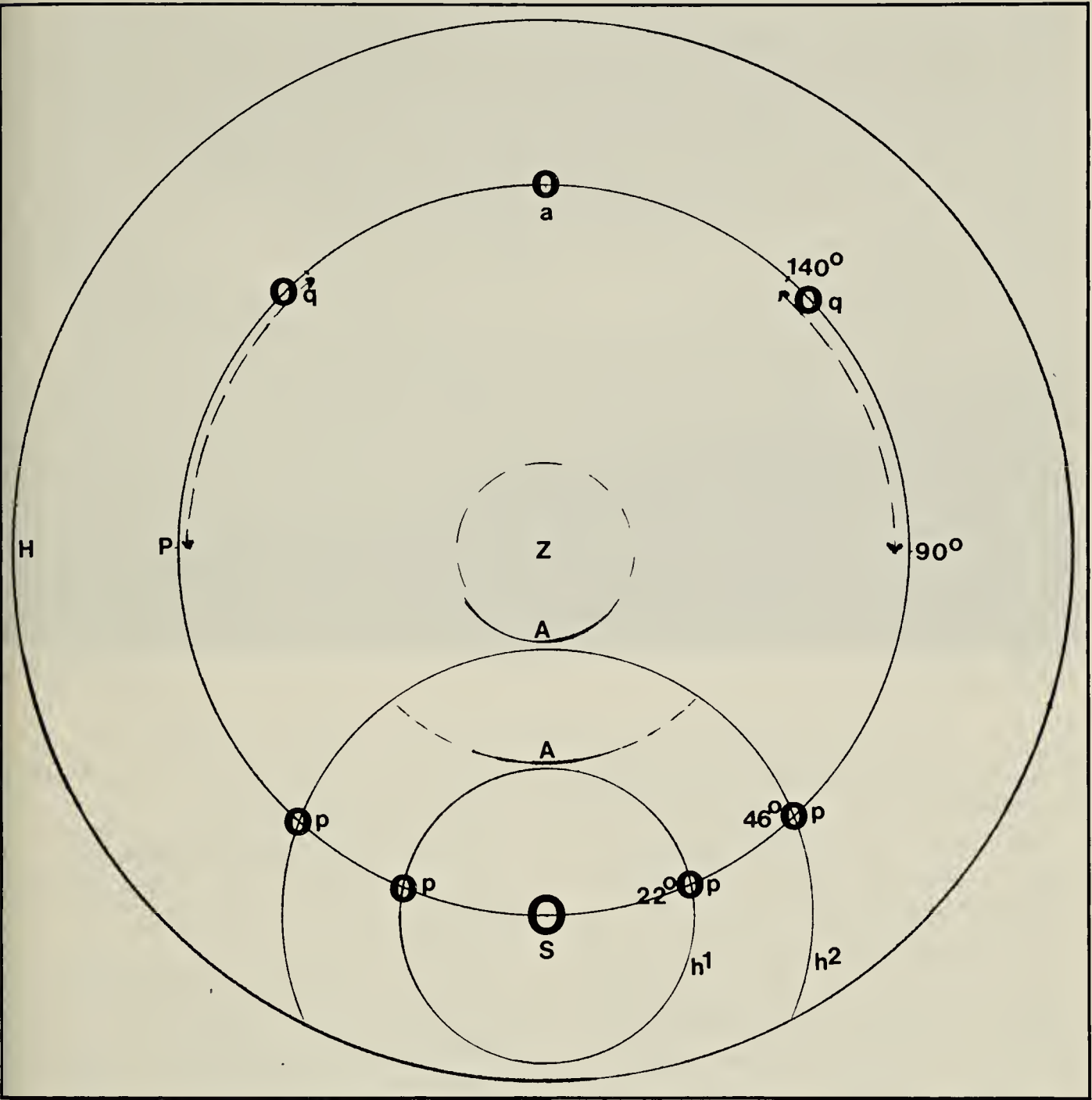
Several Natural History Society members, comparing notes later, found that, like the six blind men of Hindustan, each had seen something different but no one had seen the phenomenon in its entirety, though a family on a farm had seen both northern and southern aspects. The missing link was that luminous white line; did it really form a complete circle?

The answer, finally tracked down in the *Encyclopaedia Britannica* under "halo", is yes! And the accompanying diagram contained every detail observed at Indian Head on December 4, 1977.

The diagram used here is based on the one in the *Encyclopaedia Britannica*, slightly simplified, and with the key tailored to the requirements of this article. According to the *encyclopaedia* article, "halos of well developed form are rare, except in polar regions . . . though only in very exceptional circumstances are all the parts visible." The exceptional circumstance on December 4, 1977 must have been the extraordinary number of frost crystals in the atmosphere in the wake of the previous night's blizzard.

The lower half of the diagram shows the features observed in the southern sky on that date. The sun, or luminary (S) is encircled by the inner and outer halos ( $h^1$ ,  $h^2$ ), having radii about 22 degrees and 46 degrees from the sun. The inner halo exhibits confused spectrum colors with a decided red tinge.





Zenith view of a complex solar display.

- |                     |                                     |
|---------------------|-------------------------------------|
| S — Sun             | h <sup>1</sup> — inner halo         |
| H — Horizon         | h <sup>2</sup> — outer halo         |
| Z — Zenith          | p — parhelia (beside sun)           |
| P — Parhelic circle | a — anthelion (opposite sun)        |
| A — Arcs            | q — paranethelia (beside anthelion) |

on the inside, the outer halo is broader and less bright. The luminous white line passing through the sun and parallel to the horizon (H) is the *parhelic circle* (P), on which a number of images of the sun appear. Four of these are the parhelia (p), commonly called mock suns or sundogs, but the images at 46 degrees are very rare. Also observed on December 4, 1977

was the zenith spectrum arc (A), but other arcs shown in the diagram were not noticed at that time.

The upper portion of the diagram shows the three luminous orbs strung out like beads along the northern portion of the parhelic circle, which were observed by those who had a clear view of the northern sky. The



*First Parhelia*

*Joan Halford*

encyclopaedia refers to these figures as "images of the sun and the two bright inner parhelia"; they may appear as orbs or, more commonly, as mere patches of light.

The centre orb is the *anthelion* (a) literally 'opposite the sun', which remains fixed in the anti-solar position. The two flanking orbs are the *paranthenia* (q) literally 'with the anthelion', which are situated from 90 degrees to 140 degrees from the sun along the parhelic circle. The encyclopaedia states that the paranthenia are at 90 degrees at sunrise, and move away from the sun as it rises higher, but omits comment on the time or circumstances under which they will reach 140 degrees.

The article concludes with detailed explanations of how various solar displays are created by the reflection and refraction of light in mega-millions of frost crystals of specific types. The lay reader may not be able to follow, but the imagination is fired by the vision of an infinity of light rays shuttling through a cosmic crystal loom, on their appointed task of

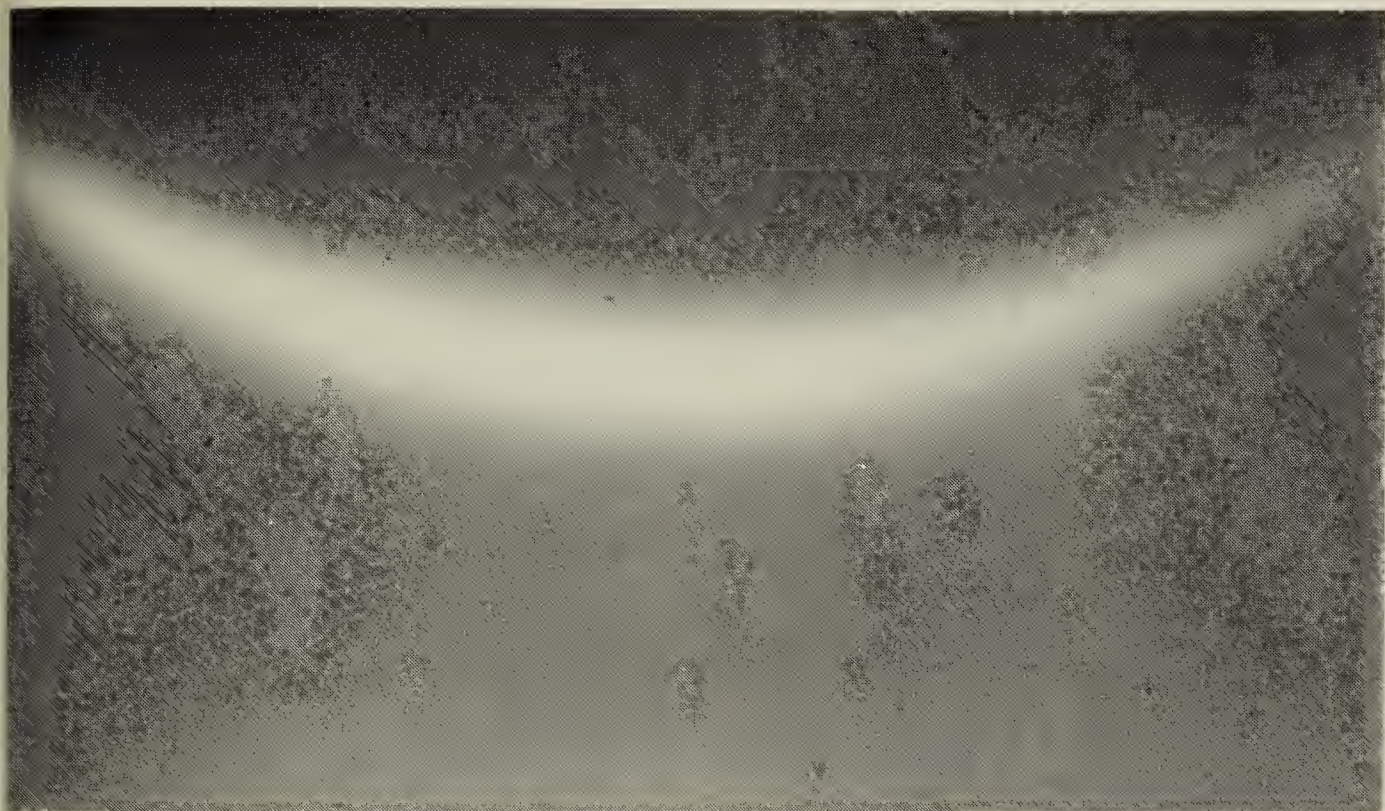
revealing the order and beauty inherent in all creation.

"The heavens declare the glory of God; the firmament showeth his handiwork."

Leaving this field to the physicists and poets, we turned to a more practical line of research. Just how rare are solar displays of this type? We live in a northern land, are familiar with Eskimo lore and the tales of trappers, gold seekers, and polar explorers; yet only one of our group had ever seen or heard of solar displays, aside from sundogs and "a ring around the sun". (And moon too, of course — all solar displays have their lunar counterparts.)

This man recalled for us a boyhood memory of a striking solar display seen on the rim of the Qu'Appelle Valley while he was hauling straw in the bitter winter of 1916. Lying back on his load for warmth, he became aware of a sky filled with circles, crosses, and areas of light centering around an overhead rainbow. His lasting impression was of the order and symmetry of the design,





Overhead Arc

Ernie Buglass

and the radiance of the zenith spectrum.

He also possesses the diary of a young English emigrant to the Qu'Appelle district, which contains entries and diagrams dated February 19 and February 25, 1887, describing zenith and horizon rainbows, double halos, four mock suns, and what was probably a fragment of a parhelic circle. The diarist refers to his diagrams as 'imperfect' sketches.

Further enquiries brought out the interesting testimony of a family who, for three generations now, have been seeing double sundogs, triple 'moons', and zenith rainbow arcs — south of Balcarres in 1916, at Cadillac 40 miles south of Swift Current in 1942, and at Indian Head and Balcarres on December 4, 1977, when from both points 'they saw the display in its entirety, including the elusive parhelic circle.

From this scant evidence one cannot make any pronouncement on the rarity or otherwise of solar displays; but it may be deduced that (a) they are very easily missed, (b) they are more likely

to be noticed if one knows of their existence, and (c) they may not be as rare as the powers of observation in the average human.

The *Scientific American*, April 1978 issue, brought fascinating additional information in an article, "Atmospheric Halos", by David Lynch. This author's expression of doubt about the actual existence of the 46-degree parhelia, coupled with indistinct photos taken in the Antarctic and at the observatory in San Diego, cause one to wonder if perhaps Saskatchewan, with its big, clear, northern sky, just may have a ring-side seat on these rare and beautiful sky shows.

Physicists have been delving into this natural mystery since Rene Descartes first suggested, in the seventeenth century, that solar and lunar displays are caused by the action of light in frost crystals. Poets have expressed their wonder at least since the time of the Hebrew psalmists. But a child, enchanted by the sight, is content to croon, "Seven suns around the sun, and a rainbow on top!"



# THE WHITE FLOATING MARSH MARIGOLD, *CALTHA NATANS*, IN SASKATCHEWAN

VERNON L. HARMS, Fraser Herbarium, Department of Plant Ecology, University of Saskatchewan, Saskatoon

The white floating marsh-marigold, *Caltha natans* Pallas, differs from the common yellow marsh-marigold, *C. palustris* L., by having floating or creeping stems that are more slender and rooting at the nodes; kidney-shaped leaves that are smaller (mostly less than 3 cm wide), thin, and scarcely toothed; flowers smaller (about 1 cm broad), with the petal-like sepals white to pinkish, smaller (4-5 mm long); and numerous (about 30) simple pistils that mature into short-beaked follicular fruits less than 5 mm long clustered in a globose head (see Figure 1).

The white floating marsh-marigold, *Caltha natans*, has previously been regarded as very rare in Saskatchewan. Breitung recorded it only from Windrum Lake (56° 04' N, 104° 10' W) (CAN) and Amisk Lake (on Meridian Creek J. H. Hudson 1431, DAO).<sup>2</sup> Harms & Hudson reported the species from 7 miles SSE of La Loche (Harms 17633, SASK).<sup>3</sup> It was included by Argus & White in their tentative list of rare and endangered plants of Saskatchewan.<sup>1</sup>

During the last five years, botanical field studies by the author and students in northern Saskatchewan have resulted in additional specimen records of this species from various localities. These amplify considerably the known distribution of the white floating marsh-marigold in the province. These new locality records, along with their collection data, are as follows: 8 mi. NE of Pelican Narrows (55° 15' N, 102° 51' W), shallow stream pond near lake, Sep. 4, 1975, Harms 23364B (SASK); ca. 1 mi. SE of Island

Falls Dam on Churchill River (55° 31½' N, 102° 20½' W), shallow edge of beaver pond on small stream, Sep. 3, 1975, Harms 23234 (SASK); SW side of Trade Lake on Churchill River (55° 20½' N, 103° 48' W), sedge fen at source of small creek, Aug. 6, 1974, J. & J. Heilman 2629 (SASK); Reindeer River, midway between Steephill Lake and The Two Rivers (55° 51' N, 103° 05' W), rare in shallow water marsh of protected bay, June 13, 1974, J. & J. Heilman 1467 (SASK); McDonald Creek, NE of Steephill Lake of Reindeer River (56° 02' N, 103° 05' W), rare on creek banks, July 19, 1974, J. & J. Heilman 2383A, 2398 (SASK); 4.5 mi. NE of Otter Rapids, Mile 58 of Hwy. 102 (55° 43' N, 104° 42' W), shallow water and mucky mud shore of stream channels in sedge/willow fen, Aug. 7, 1975, Harms 22760 (SASK); McLennon Lake, Mile 83 of Hwy. 102 (55° 55' N, 104° 18' W), in quiet pool of rocky stream, July 27, 1972, J. Ternier & S. Lamont 1107 (SASK); ca. 1.5 mi. W of Southend, Numabin Bay of Reindeer Lake, Mile 133.6 of Hwy. 102 (56° 19' N, 103° 20' W), locally abundant in shallow ponds and wet mud flats, Aug. 5, 1975, Harms 22669 (SASK); 15 mi. W of Numabin Bay of Reindeer Lake, Mile 1.3 of Hwy. 105 (56° 16' N, 103° 36' W), shallow gravelly stream in disturbed clearing, July 20, 1973, J. Ternier & M. Jasieniuk 2191 (SASK); between Davin Lake and Atwater Lake, Mile 34 of Hwy. 105 (56° 48' N, 103° 36½' W), abundant in small pond, July 16, 1975, Harms 21412 (SASK), Aug. 5, 1975, Harms 22610 (SASK); ca. 3.5 mi. S of Courtenay Lake, Mile 98 of Hwy.



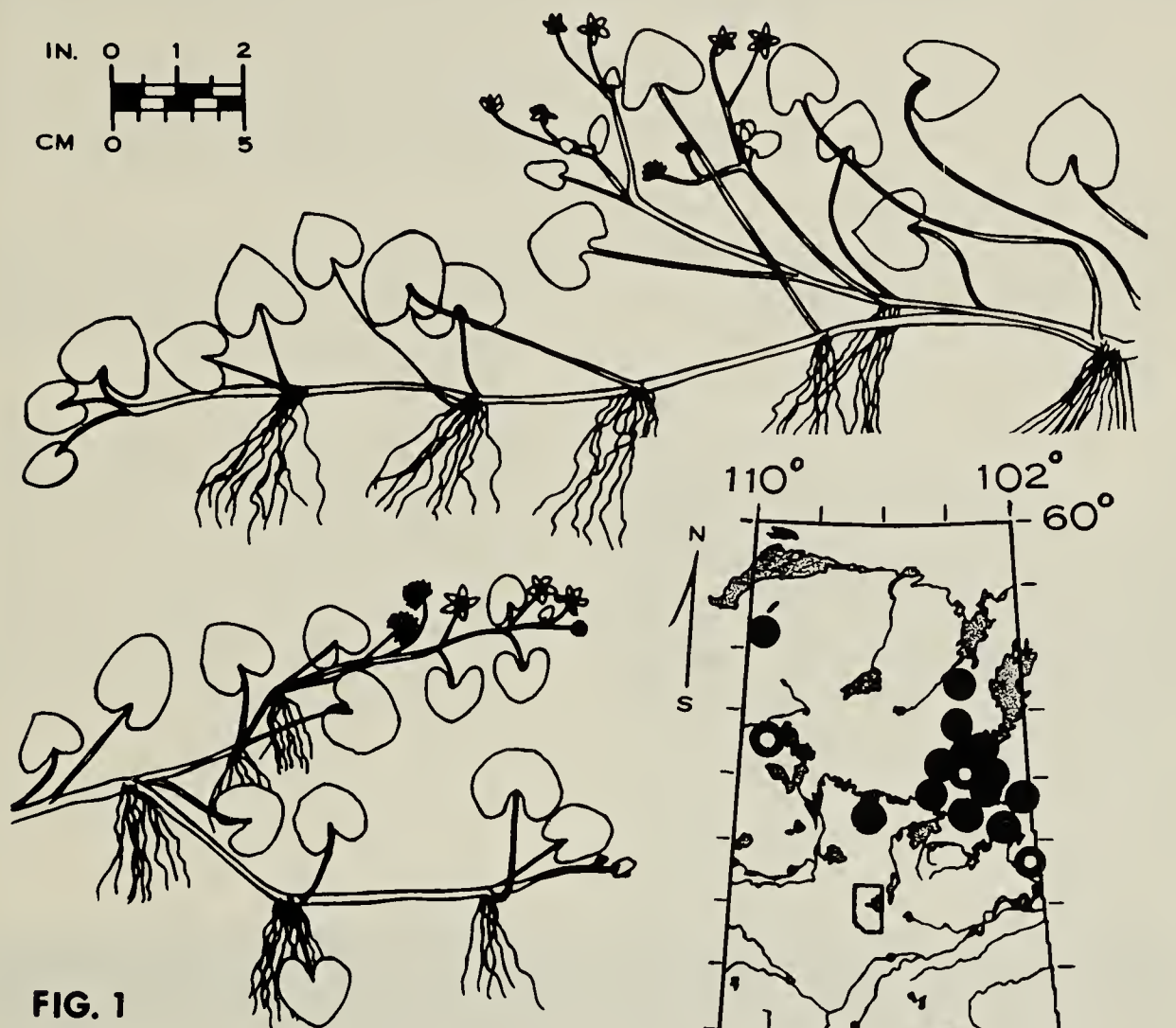


FIG. 1

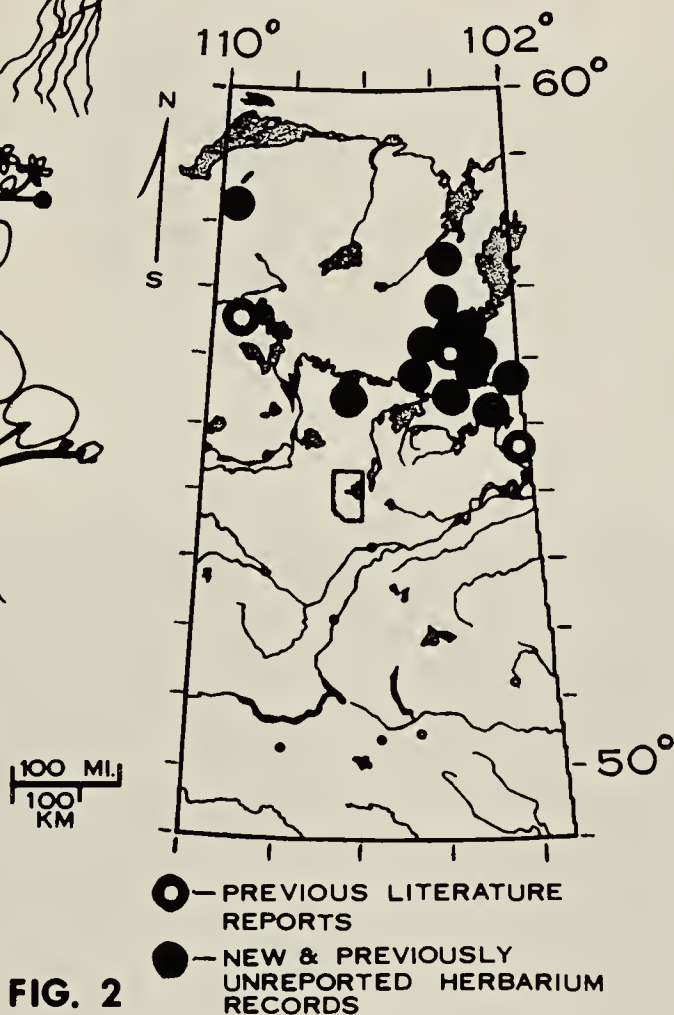


FIG. 2

Figures 1 and 2 — The white floating marsh-marigold, *Caltha natans*: Fig. 1 — Habit of plants. Fig. 2 — Distribution map of the known localities in Saskatchewan

105 (57° 30' N, 103° 58' W), abundant in mud and shallow water of sedge meadow at source of creek, June 22, 1973, J. Ternier & M. Jasieniuk 1430 (SASK); Cluff Lake area, ca. 1 mi. W of Island Lake (58° 21' N, 109° 42' W), locally numerous in shallow drainage channel in wet shore sedge fen, July 18, 1977, Harms, Skoglund & Wright 24485 (SASK); Besnard lake on S shore E of Narrows, June 20, 1977, D. Eagen 65

(SASK).

The previously reported and presently cited Saskatchewan locality records for the white floating marsh-marigold are mapped in Figure 2 to better show the known distribution of this aquatic species in the province. In Saskatchewan, this species is thus far recorded only in the Northern Boreal Forest Region, with all locality records from either on or just south of the



Canadian Precambrian Shield. It is not yet known from the Southern Boreal Forest Region (Mixedwood Section), except in its more northern extremities, nor from the Transitional Subarctic Lichen-Woodland Region in northeastern and northernmost Saskatchewan. Because of the relative frequency of recent collections of this species in northern Saskatchewan, as well as its local abundance at most known sites, this marsh-marigold can hardly be retained any longer in the status of a rare and possibly endangered species in the province. Instead this represents another example of how poorly known in the past has been the flora of northern Saskatchewan. Extensive floristic

studies are still needed to upgrade our present knowledge of the native flora, especially for the north-central and northwestern regions of this province south of the immediate Lake Athabasca and Black Lake vicinities.

<sup>1</sup>ARGUS, G. & D. WHITE. 1975. Preliminary List of the Rare Plants of Saskatchewan. National Museum of Canada.

<sup>2</sup>BREITUNG, A. J. 1957. Annotated catalogue of the vascular flora of Saskatchewan. The American Midland Naturalist, 58:1-72.

<sup>3</sup>HARMS V. L. & J. H. HUDSON. 1974. Some new or noteworthy vascular plant records from northwestern Saskatchewan. Rhodora, 76:39-44.



*Contrasting White and Purple Heads of Nodding Thistle*

*J. B. Collopy*



# THE WHITE-FLOWERED FORM OF NODDING THISTLE IN SASKATCHEWAN

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The nodding thistle *Carduus nutans* L. is one of Saskatchewan's largest and most striking weed species. The robust branching plants often reach over two metres in height and have deeply lobed prickly leaves, and large, showy, nodding, purple heads, borne solitary at the ends of long branches. This Eurasian species is widely naturalized in North America, occurring mostly in pastures, old fields, waste places, and along roadsides. While individual colonies of the species may be quite large and locally even represent obnoxious weeds, the overall occurrence of nodding thistles in Saskatchewan seems rather sporadic. We are aware of fewer than 20 localities where this species has been recorded in the province, although it probably occurs in many more places and likely is still actively spreading here.

Elsewhere throughout its range, occasional plants with white-flowered rather than purple heads are known to occur. However, to our knowledge, no white-flowered plants have previously been recorded for Saskatchewan, nor have we personally seen any. On July 26, 1975, Bernie Gollop encountered about 15 white-flowered plants among a relatively large population of typical purple-headed nodding thistles growing in a dry grazed pasture 7 miles south and 2 miles west of Dundurn, Saskatchewan. The white-flowered heads formed a striking contrast with the purple-headed ones, but both forms were exceptionally showy. Voucher collections of these plants



J. B. Gollop  
*Intermixed colony of White- and Purple-headed Nodding Thistles*

have been deposited in the Fraser Herbarium, University of Saskatchewan. White flowers were present and more numerous on the same site in 1977 and 1978.

We would be interested in hearing about any other Saskatchewan locality records of the white-flowered form of the nodding thistle. Perhaps it is not as rare as we have thought it to be in this province.



# NOTES ON THE PLANTS OF THE DOUGLAS PROVINCIAL PARK SEEPAGE AREAS

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EDITOR'S NOTE: Douglas Provincial Park is located on the east shore of Lake Diefenbaker, about 13 Km south of Elbow, Saskatchewan on number 19 highway.

One of the several purposes served by Douglas Provincial Park is to preserve an area of unique vegetation associations. To a nature lover it is the wildlife, and unique features of land and vegetation that are attractions within this park. The author found the lakeshore seepage areas to be of special interest. An attempt is therefore made to describe this feature of Douglas Provincial Park so that others may be lured into exploring them and share the beauty of these small areas. The fascination of the springs was due to the presence of showy wildflowers, plants outside what is considered their normal range, and plants rare in Saskatchewan.

Originally the seepage areas were found at the top of the bank of the South Saskatchewan River, and no doubt their courses down the slope were marked by species of plants that are not found at their source. However the building of Gardiner Dam and the resulting reservoir have flooded all but the origin of the streams. Trees such as Manitoba maple *Acer negundo*, green ash *Fraxinus pennsylvanica*, American elm *Ulmus americana*, and perhaps eastern cottonwood *Populus deltoides* may have grown on the slopes, but are not found within the park area, with the exception of maple. There may be areas along the South Saskatchewan and Qu'Appelle river valleys supporting vegetation similar to that

which was found in the now flooded ravines that drained the seepage from these sites into the South Saskatchewan River. That will never be known to those of us who were not lucky enough to have seen the area before.

The ground in the seepage areas is generally either gently sloped or hummocky. Hummocky terrain is usually associated with the wetter areas, with standing water in the hollows. Seepage varies from fresh water to saline. The vegetation changes with the salinity as well as with the amount of water present. Some of the seepage areas are situated high enough that the water table drops below the ground surface before the end of the summer. This allows the soil to dry somewhat. In these areas grasses and rushes dominate, whereas in areas that remain wet sedges tend to be more abundant.

Scattered throughout much of the wetter areas are clumps of hoar willow *Salix candida*, and swamp birch *Betula glandulifera*. Both are species found most commonly in swamps and bogs of the northern forest. Around the margins of the wetter areas water birch *B. occidentalis* grows and there are various other willows such as the common beaked willow *S. bebbiana* and sandbar willow *S. interior*, and the less frequent autumn willow *S. serissima*.

In the continuously wet, springy areas there are a variety of sedges that are found only in this type of habitat. These include golden sedge *Carex*





Seepage area at Douglas Provincial Park

S. M. Lamont

*aurea*, Crowe's sedge *C. crawei*, soft-leaved sedge *C. disperma*, inland sedge *C. interior*, blunt sedge *C. obtusata*, graceful sedge *C. praegracilis* and mimic sedge *C. simulata*, the latter being rare in Saskatchewan.<sup>1</sup> Some of the others mentioned are more commonly found in more northern parts of the province. Water sedge *C. aquitilis*, woolly sedge *C. lanuginosa*, and beaked sedge *C. rostrata* are all common species that are found in areas of continuously wet soil.

Another member of the sedge family that is rare south of the forest in Saskatchewan is tall cotton-grass *Eriophorum angustifolium*. Although it doesn't have the same impact here as in the breath-taking expanses that occur on the large fens of the north, the seed heads with their long, white "hair" are an exciting find.

In spring the northern bog violet *Viola nephrophylla* blooms amongst the hummocks. Loesel's or bog twayblade *Liparis loeselii*, a small,

green-flowered orchid of eastern bogs, found in some of the seepage areas is a rare plant in Saskatchewan. The green-flowered orchid or northern bog orchid *Habenaria hyperborea*, usually associated with bogs of the forested areas, is quite common throughout the springs. Other "northern" wildflowers growing in the wetter areas include northern grass-of-Parnassus *Parnassia palustris*, with its white, star-shaped flowers, fringed gentian *Gentiana crinata* with flowers of deep blue color, and Kalm's or bog lobelia *Lobelia kalmii* with small blue and white faces.

The drier areas in the zones of seepage, including the hummocks surrounded by water, are dominated by grasses. The most abundant are marsh muhly *Muhlenbergia racemosa* and mat muhly *M. richardsonis*. Tufted hair grass *Deschampsia caespitosa* may also be common. Among the rushes present are Baltic rush *Juncus balticus*, Richardson's rush *J. alpinus* and long-styled rush *J. longistylis*. Wildflowers





Saline shooting-star S. M. Lamont

include many familiar to prairie and parkland dwellers — early blue violet *Viola adunca*, common tall sunflower *Helianthus nuttallii*, small-leaved everlasting *Antennaria parvifolia*, numerous asters *Aster* spp. and goldenrods *Solidago* spp. Some of the seepage areas have a few pink-flowered wintergreen *Pyrola asarifolia* blooming on the hummocks.

In more saline areas northern reed grass *Calamagrostis inexpansa* and alkali bluegrass *Poa juncifolia* are frequently found. Where the surface does not remain wet and salinity is high, little bluestem *Andropogon scoparius* is a grass that can be recognized from a distance in autumn and spring because of the distinctive rusty orange of the dry stems and leaves. Scirpus-like sedge *Carex scirpoidea* var. *scirpiformis* and greenish sedge *C. viridula* = *C. oederi* also indicate saline conditions.

Saline shooting-star *Dodecatheon pauciflora* is a familiar prairie flower of saline areas. So is mealy primrose *Primula incana* with its clusters of small lilac flowers with yellow centers

on a stem above a rosette of leaves distinguished by their white, mealy underside. As summer advances white or smooth camas *Zygadenus elegans* blooms. The common name is slightly misleading as the star-shaped flowers are really a greenish color. Blue-eyed grass *Sisyrinchium montanum* blooms most abundantly in the more saline areas.

Near what is now the lakeshore the seepage water is quite fresh in the lower parts, and some flow may be detected. Larger seepage areas may have cattails *Typha latifolia*, common great bulrush *Scirpus validus*, three-square *S. americanus* and small-fruited bulrush *S. microcarpus*. Early summer flowers include narrow-leaved waterplantain *Alisma gramineum* with its three pink-tinged petals and tufted loosestrife *Lysimachia thyrsiflora*, bearing clusters of tiny, bright yellow flowers at its leaf bases.

Although the grasses, sedges and shrubs of the Douglas Provincial Park seepage areas are of interest to the botanist, for most people it is the plants with showy or unusual flowers that attract attention. These seepage areas support a variety of wildflowers to be sought out during different seasons and are an added attraction to all the other features that Douglas Provincial Park has to offer.

ACKNOWLEDGEMENTS: I would like to thank John Hudson for looking at the specimens of sedges collected at the springs, and George Ledingham for verification of the Loesel's twayblade. Also thanks go to John Storer and Wayne Harris for critical reading of the manuscript. The information for this article was gathered during temporary employment with the Museum of Natural History in Regina.

<sup>1</sup>HUDSON, J. H. 1978. *Carex* of Saskatchewan. Buffalo Press, Saskatoon.



# FURTHER OBSERVATIONS OF THE RUFFED GROUSE'S "CRAZY-FLIGHT"

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It is seven years since I first reported my observations concerning the "crazy-flight" of the Ruffed Grouse.<sup>2</sup> This flight refers to the bird's occasional mode of flying wildly about, often against buildings, and sometimes killing itself.

In my article I discussed the findings about this phenomenon, from reports dating back to the early 1800's (those of Audubon) and extending to the middle of our present century. Reference was made to studies by Hall, Bump, Edminster, Knight, and Grange, all of whom published their findings in 1946-48. Earlier works cited, besides Audubon's, were by Allen, Bent, Forbush and Gross. (Full bibliographical information on these studies can be referred to in that article).

What was apparent from these findings was that they did not agree on any one explanation for the crazy-flight phenomenon. Explanations given included population pressure, migration instinct, disease, change of diet, sudden fright, nervousness caused by sparse cover, and color of the object against which the bird flew. No one of these reasons adequately explained all six of my observations from 1963 to 1968.<sup>2</sup>

Now, further studies have come to my attention — some previously overlooked, some new — and I myself have five more observations to report. For review, all 11 of my observations are summarized in Table 1. The new observations will be described in some detail in the latter part of this article.

## Survey of Literature

The studies not previously reported are here treated chronologically. Not all of them speak directly of the cause of the crazy-flight, but the comments do have some bearing on the phenomenon. Trippensee implied that crazy flights were something apart from seasonal movements, for the latter, he said, were of shorter distance, usually less than one mile.<sup>7</sup> Chambers and Sharp found, however, that most juveniles tended to move farther than a mile during dispersal, thus suggesting in the light of some other observers' comments that fall dispersal and the crazy flight might be related.<sup>1</sup>

It is to be remembered that Seton in his classic *Wild Animals I Have Known* had detailed the true account of a particular Ruffed Grouse and made some observations about the species generally.<sup>6</sup> He had said that all Ruffed Grouse in their first year, and to a lesser extent in their second year but practically never thereafter, go crazy in the autumn. They fly into strange territory in their "mad hankering to get away somewhere", and this craze has at least the effect of breaking up families and preventing inbreeding. Chambers and Sharp, too, saw that adults, after their first mating season, remained relatively sedentary.<sup>1</sup> While another study made no particular mention of the crazy-flight, this project of banding grouse in Wisconsin did note the fall movement of juveniles.<sup>4</sup> This, the authors, said, was independent of population pressure.

Farther west, in Minnesota, a detailed study centered on two broods

TABLE 1. APPARENT CRAZY-FLIGHT COLLISIONS AT ROSTHERN, SASK., 1963-78

Season	Date	Time	Skies	Position of Sun	Temperature	Wind	Height of Impact
1) Spring	April, 1963	—	—	—	—	—	—
2) Spring	April, 1963	Early evening	Clear	Behind	Cool	Calm	1-2 ft.
3) Spring	May, 1964	Mid-morning	Clear	In front	Warm	Calm	1-2 ft.
4) Summer	Aug., 1964	Mid-afternoon	Clear	Behind	Cool	Calm	1-2 ft.
5) Spring	May, 1966	Early evening	Clear	From side	Warm	Calm	—
6) Fall	Sept., 1968	Evening	—	Had set	Cool	Calm	—
7) Late spring	June 13, 1973	4:00 p.m.	Hazy	Behind	20°C	Gusty	1-2 ft.
8) Late spring	June 14, 1973	6:45 a.m.	Hazy	In front	10°C	Breezy	1-2 ft.
9) Fall	Oct. 5, 1975	5:00 p.m.	Hazy	Behind	17°C	Calm	5 ft.
10) Spring or fall	1960-65	Mid-morning	Clear	Behind	—	—	5 ft.
11) Winter	Jan. 21, 1978	9:00 a.m.	Clear	Not risen	-18°C	Calm	5 ft.

of Ruffed Grouse with nine juveniles.<sup>3</sup> Dispersal was recorded by radio transmitters on some birds. In the fullest explanation yet, these authors concluded that crazy-flight behavior “is explained as the probable manifestation of typical dispersal activity” and that dispersal occurs “as a definite yearly activity” and “not merely [as] a mechanism of scattering surplus grouse.” All dispersal took place in four days or less — with an average distance of 1.85 miles. Each grouse, by walking as well as flying, tended to travel in one direction so that placement of buildings and other obstructions in its way could well lead to the characteristic casualties associated with crazy-flight. Of course, these casualties, the writers continued, would be more noticeable during times of high grouse population and so give rise to the notion that population pressure instigated them.

More recently, Woolner repeated the idea that overcrowding is not the cause of crazy-flights, and he, too, saw the flight as a distinct fall occurrence with the majority of birds killed being immatures.<sup>8</sup> In a book addressed chiefly to hunters, he came to the same conclusion as did Seton and spoke in this manner of nature’s way of spreading a brood and getting new blood into different areas: “Crazy flight is a transitional madness, the natural rebellion of the young that courts disaster as it bridges the dangerous gap between youth and adulthood.” At the same time he also voiced the idea that crazy grouse may be feeding on hallucinatory fungi (the drug scene invading the world of the grouse!)

In another general study of the Ruffed Grouse, the annual fall shuffle was linked with their crazy-flight but



no definite answer as to the exact cause was provided.<sup>5</sup> Incidents were noted however, of the aggressiveness of cock grouse — their attacking a man by grabbing a pant leg and shaking it or their attacking their own image in a car's hubcap or windshield. Also described was the well-known propensity of grouse in winter for flying head-first into snowdrifts and then spending the night there. Both of these activities, as we shall see later, may have some relation to the crazy-flight phenomenon.

### Local Observations

Of my five new observations, three were made by myself and two by a neighbor. With these apparent crazy-flights, I have taken more pains than before in compiling notes, realizing that any details, including weather data, may prove significant at some future time when more information is available concerning this phenomenon. Again, as in my previous article, the observations were made on our farmyard 3 miles east of Rosthern, Saskatchewan, or on a yard immediately adjoining our quarter-section. Both yards have rows of shade trees along which grouse walk when leaving their covert in nearby poplar bluffs.

Five years had passed since my last reported observation in 1968. Then in June, 1973, two grouse flew into our house on successive days, recalling for me my observations 10 years earlier when two grouse met their death there just a few days apart in the month of April. Although I had also previously recorded two crazy-flights occurring in May, one in August and one in September, this was the first I had witnessed in June.

It occurred on June 13, at 4:00 p.m. There was a hazy sun, a strong gusty wind from the east, and a temperature of 20°C. The bird hit the northwest corner of our house on the west side,

1.5 feet above ground, while I was standing out of sight nearby. It got up dazed and limped to the north side of the building where it died 15 minutes later. Examination revealed it to be a nesting female! — the brood spot on its lower breast was without feathers (Fig. 1). Females generally lay an egg each morning and spend the rest of the day feeding until the clutch is completed; then brooding begins.

I mentioned in my earlier article that our house is painted white, and there is some evidence to suggest that such walls may appear as sky to a Ruffed Grouse.<sup>2</sup> However, the walls of our house are covered with clapboards so that this "sky" would look quite artificial, being ruled out in neat horizontal lines. In such manner it must have appeared to various grouse throughout the 1940's and '50's, for no collisions occurred then, and there is no reason to believe that it should look any different to them in the last two decades. Furthermore, this female grouse hit the corner just beside a vertical trim board painted green.

At 6:45 a.m. the next day another thud told of a second collision, again on the west wall but at the other corner. At this early morning period the weather conditions were similar to those of the day before — a hazy sun, a breeze from the east, and a temperature of 10°C. A slight smear on the wall showed the point of impact, once more 1.5 feet from the ground. A single Ruffed Grouse feather was found nearby.

Later that morning, at 9:30, I made a thorough investigation of the lilacs growing near the house to see if I could find the bird. Forty feet away I flushed a grouse from a carragana hedge that borders our lane. From its somewhat labored flight, I believed it to be the bird which hit our house.

It can be said that in both these collisions the sunlight, either direct or





V. C. Friesen

*Fig. 1: Nesting Ruffed Grouse, killed in collision with house, June 13, 1973*

reflected from the wall, would not have hindered the grouse's vision. In the first instance what sun there was, was behind the bird; in the second instance the rising sun's rays were blocked out by a bush.

I had one further occasion to witness a crazy-flight, this time from its start to its finish, as I had done once before in August, 1964. The grouse in question did seem to be agitated before it began its flight. In later afternoon, October 5, 1975 — a sunny day with some haze, no wind and a temperature of 17°C — I heard a Ruffed Grouse walking up and down in the dried leaves at the edge of a poplar

bluff just west of our yard. It was making "cooing" noises. When I stepped into view and we saw each other for the first time, the bird continued to strut and to coo 25 feet away.

Then the grouse whirled its wings and took off — at *me*. Audubon had reported that male grouse in jealousy sometimes fly at man if the person imitates the bird's drumming sound, and a related experience was noted above.<sup>2 5</sup> I, however, was standing as still as possible. Since I had been watching the grouse intently, I could distinctly see it close its eyes on taking off — white eyelids replacing its dark



eyes — but the bird opened them again while just under way.

All these things, of course, happened in a matter of moments. I tried to dodge aside, and the grouse veered the other way, flying along a row of pruned maples which forms the northern boundary of our yard. Then it veered inside, between two trees, glided along a fifty-foot building (painted red), rounded the corner, and with a further whir of wings safely steered its course between two more maples of a north-south row before our house. Then it crashed through the house's west bedroom window — both the storm and regular windows. Only a dresser inside prevented it from

hurtling across the entire room (Fig. 2).

My mother had been walking to the door to go inside when the grouse made its own entrance, just six feet away. We do not know whether the grouse noticed her. The accompanying photograph shows that the window may have looked like sky to the bird, but at the time of impact a cream-colored blind was drawn inside, eliminating the reflection.

Surprisingly, the grouse was not killed. It was found on a bed, and, while being carried outside, it struggled but it did not move when placed on the lawn. It squatted there for an hour, in spite of my activity

*Fig. 2: The grouse survived this collision with a double window, October 5, 1975*  
V.C.Friesen





nearby, cleaning up the broken glass, before it got up and walked into the carragana hedge. The eventual fate of this grouse remained unknown. Grouse, when injured, may ultimately die, if not from injuries, then from an unwillingness to eat.<sup>2</sup> It is to be hoped that the Ruffed Grouse I saw a few days later in our backyard, nipping off rose hips from a briar patch, was our unexpected house guest.

My neighbor's two observations occurred about a dozen years apart. He remembers that sometime in the period 1960-65, in early spring or late fall (there were no leaves on the trees), a Ruffed Grouse landed in his yard after a flight of a few hundred yards from a poplar bush in our pasture. It was mid-morning, and the bird was flying away from the sun. When he walked towards it, it took off again, in a southwesterly direction, and 50 feet away crashed into the north wall of his house trailer.

The neighbor found it strange that the bird should do so when the trailer, painted rose, must have bulked large above the skyline from the bird's point of view. Furthermore, the grouse flew against the wall rather than against the large window on that side. The grouse, clucking now, was seemingly unhurt, and when approached, it flew up a second time, straight west through a small stand of trees. It made little attempt to dodge the branches. It seemed to exhibit some of the characteristics of crazy grouse, i.e., because of a kind of harassment, it became increasingly agitated, and, already out of its normal habitat, flew into objects there.

Then on January 21, 1978, at 9:00 a.m., a pair of Ruffed Grouse flew westward into this neighbor's yard, once more from the poplar bush in our pasture. They had been flying there all winter in order to feed on elderberries and so were acquainted with the

farmyard. One bird landed in the snow as usual; the other flew against the east window of the house. That the light was still on inside may have affected the bird's vision, but it is hard to believe a grouse would wish to fly into a household of people. Outside, the morning light was good even though the sun was not yet up. The sky was clear, and with no appreciable wind and the thermometer standing at -18°C. Hoarfrosted trees added to the brightness.

On other mornings the neighbor had sometimes noticed these same grouse entering the yard by sailing headfirst into soft snow and then crawling out right away to begin their feeding. It seemed to be their customary way of landing.

### Conclusions

The most recent literature on the subject of crazy-flights tends to relate normal fall dispersal to this phenomenon and points to juvenile birds as the most frequent victims. The focus tends to be away from unusual conditions (parasites, diet, etc.) suggested by earlier naturalists. Godfrey and Marshall are foremost in saying that the phenomenon could most readily be explained by the fortuitous combination of dispersing grouse and objects in their paths.<sup>3</sup>

My own observations, however representative they might be, show that crazy-flights occur during all seasons of the year, with spring, in fact, taking predominance over fall. At least one researcher, cited in my previous article, believed that spring crazy-flights do occur.<sup>2</sup> Of course, it can be argued that collisions other than in fall are accidental and not true crazy-flights. But this seems to be begging the question, since their very nature is what is under study.

Godfrey and Marshall do speak of the trait as a seasonal activity but at



the same time suggest that it is more obvious during those falls when there are greater numbers of grouse to be dispersed. Could it not be argued in a similar vein, the dates of my own random observations notwithstanding, that this trait would generally be more obvious *any* fall than in other seasons because there are peak populations of flying birds — adults and young — in fall? That is, the trait may be a year-round phenomenon, manifested noticeably in fall. Most birds killed would be juveniles if only because there are more of them and they compose the age group which is wandering, seeking new territory. Furthermore, they would not be as wary as older birds.

We have seen that grouse can be aggressive and also easily agitated. We are familiar too, with their impulsive flight habits, their taking off like an exploding bomb (with speeds up to 51 miles per hour<sup>5</sup>) and their sailing headfirst into snowbanks with seeming abandon. Both characteristics have stood the bird in good stead in its wild habitat, either in bluffing or intimidating its enemies or in escaping from them. A grouse typically flies in a straight line and close to the ground. What little manoeuverability it has is usually sufficient to dodge trees in its path, but man-made obstructions, being as long and wide as they are, require more greater agility in flight. In a farmyard a slight veering to one side may not prevent collisions with a building. Witness the grouse described earlier which could steer its course safely between two rows of trees but could not avoid hitting our house.

While I can still say, as I did in my previous article, that "more details of the circumstances surrounding this curious phenomenon need to be recorded in the future," it may well be that the final explanation is simpler than was first supposed.

- <sup>1</sup>CHAMBERS, R. E., and W. M. SHARP. 1958. Movement and dispersal within a population of Ruffed Grouse. *J. Wildl. Manage.* 22:231-239.
- <sup>2</sup>FRIESEN, V. C. 1971. The crazy flight phenomenon of the Ruffed Grouse. *Blue Jay* 29:121-124.
- <sup>3</sup>GODFREY, G. A., and W. H. MARSHALL. 1969. Brood break-up and dispersal of Ruffed Grouse. *J. Wildl. Manage.* 33:609-620.
- <sup>4</sup>HALE, J. B., and R. S. DORNEY. 1963. Seasonal movements of Ruffed Grouse in Wisconsin. *J. Wildl. Manage.* 27:648-656.
- <sup>5</sup>RUE, L. L. 1973. *The World of the Ruffed Grouse*. J. B. Lippincott, Philadelphia. 160 pp.
- <sup>6</sup>SETON, E. T. 1977 (originally published 1898). *Wild Animals I Have Known*. McClelland and Stewart, Toronto. 298 pp.
- <sup>7</sup>TRIPPENSEE, R. E. 1948. *Wildlife Management: Upland Game and General Principles*. Vol. 1. McGraw-Hill, New York. 479 pp.
- <sup>8</sup>WOOLNER, F. 1970. *Grouse and Grouse Hunting*. Crown Publishers, New York. 192 pp.

## 1978 SASKATCHEWAN CHRISTMAS BIRD COUNT

From Saturday, December 16, 1978 to Monday, January 1, 1979 inclusive. Count area should be a circle, 24 km (15 miles) in diameter. This year, bird count forms will be sent to all compilers who submitted counts for Christmas 1977. Anyone else who wishes to send in a count, please write for a form to: Mrs. Mary I. Houston, 863 University Drive, Saskatoon, Sask. S7N 0J8.

Reports should be sent as soon as possible after the count (by January 12, 1979 at the latest) to the above address.

# NOTES ON SOME UNCOMMON RAILS, WRENS AND WARBLERS OF ALBERTA

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The Yellow Rail, Short-billed Marsh Wren, Blackburnian Warbler, and Chestnut-sided Warbler have been sporadically sighted in localized areas throughout Alberta. This paper is an attempt to consolidate known information on those observations in the province. Notes on the time of observation, locality, habitat, and observer(s) have been included. Site numbers correspond to each species' map. These have generally been arranged in chronological sequence.

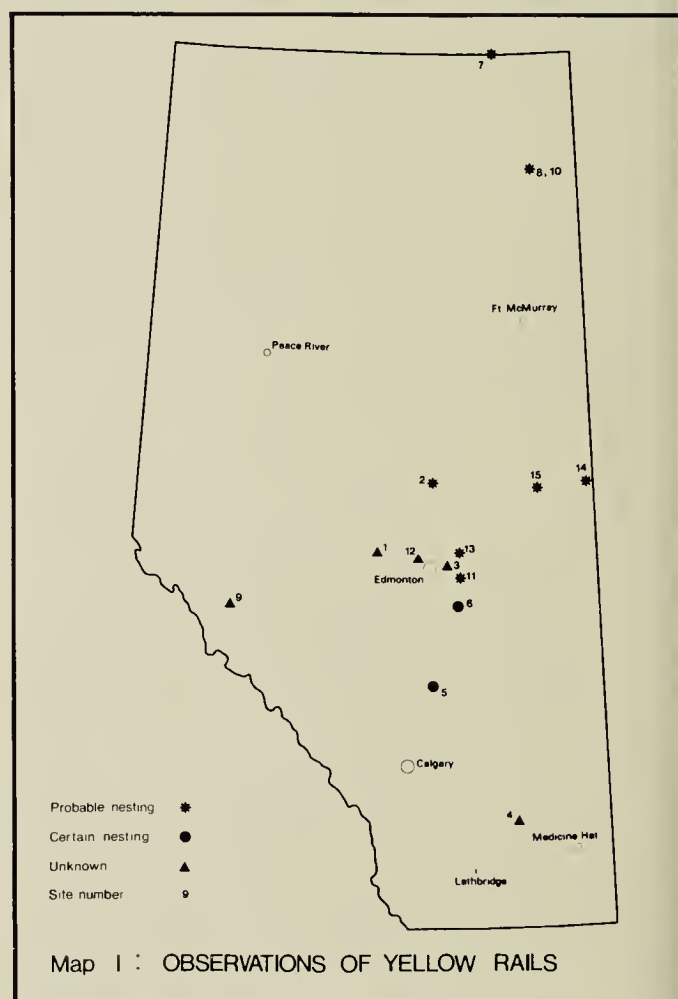
I wish to extend thanks and appreciation to the many observers who have supplied these records. Thanks are also due to the Alberta Provincial Museum, Edmonton, and the University of Alberta Zoology Museum for permitting access to their observation records.

**YELLOW RAIL (Map 1).** Breeds in the eastern half of Alberta, rarely seen.<sup>14</sup>

Site 1. Near Heatherdown, D. Wilby collected a specimen August 21, 1914. It is deposited in the Provincial Museum. No further information concerning it is available.

Sites 2, 3, 4. T. E. Randall flushed a Yellow Rail from a grassy muskeg in the Athabasca area on two occasions in the first half of June during the early 1930's.<sup>9</sup> He suspected it was nesting. He also reported Yellow Rails from Elk Island National Park and from the Brooks area.<sup>20 10</sup>

Sites 5, 6. Traverter and Farley reported that Yellow Rails nested in large marshes southeast of Red Deer



and at Dried Meat Lake near Camrose.<sup>21 5</sup>

Site 7. Soper states that during late July of 1932 "while canoeing along the Little Buffalo River, notes of a rail, thought to be this species, were heard in two separate marshes between Sass and Nyarling Rivers".<sup>19</sup> Preble and Seton also reported Yellow Rails in extreme northeastern Alberta.<sup>8 17</sup>

Sites 8, 9. A specimen was collected on the delta of the Athabasca River in 1945.<sup>15 16</sup> Two specimens taken near Jasper in the early part of the century are the only known records from the mountains. Salt and Salt report that the Yellow Rail "breeds in the eastern



half of Alberta from the Lake Athabasca region south at least to Ribstone Creek and west to Cochrane where it nested until the 1950's".<sup>14</sup>

Site 10. Hohn reports Yellow Rails from the Peace-Athabasca Delta and Wood Buffalo National Park.<sup>7</sup> He collected a specimen from the Delta area and states they are rare summer residents, probably breeding.

Site 11. Beaverhill Lake was the location of many observations during June and July, 1973. On June 26 and 27, at least one bird was heard each day by A. Smith and R. Gehlert. Habitat: sedges and scattered shrubs on southeast shore (pers. comm.). Between July 14-21, up to five birds were heard by L. Goulden in tall reeds along the northeast shore (Prov. Mus. records). On July 28, D. Dekker heard four Yellow Rails on the south shore of the lake (Prov. Mus. records). It seems highly probable that the rails were breeding although no nests were located.

Site 12. In a meadow on the edge of a spruce bog five miles northeast of Spruce Grove, J. Wolford heard "a few" Yellow Rails on May 27, 1974 (Prov. Mus. records).

Site 13. Near Lamont between July 15-18 four were heard and one was flushed. Habitat: sedge meadow with scattered willows. The birds probably nested in the area. (A. Smith, pers. comm.).

Site 14. Cold Lake was the site of several observations during the summer of 1976. Many birds were heard "tapping" late on June 5 and 9 in sedge/grass marshes to the west of Cold Lake by C. Wallis, W. Smith, W. Nordstrom and A. Gregg. On July 5, several rails were heard on the south end of Cold Lake in sedge/grass marshes and fens by Nordstrom. These birds probably nested in the area. On June 6, 1977, several Yellow Rails were

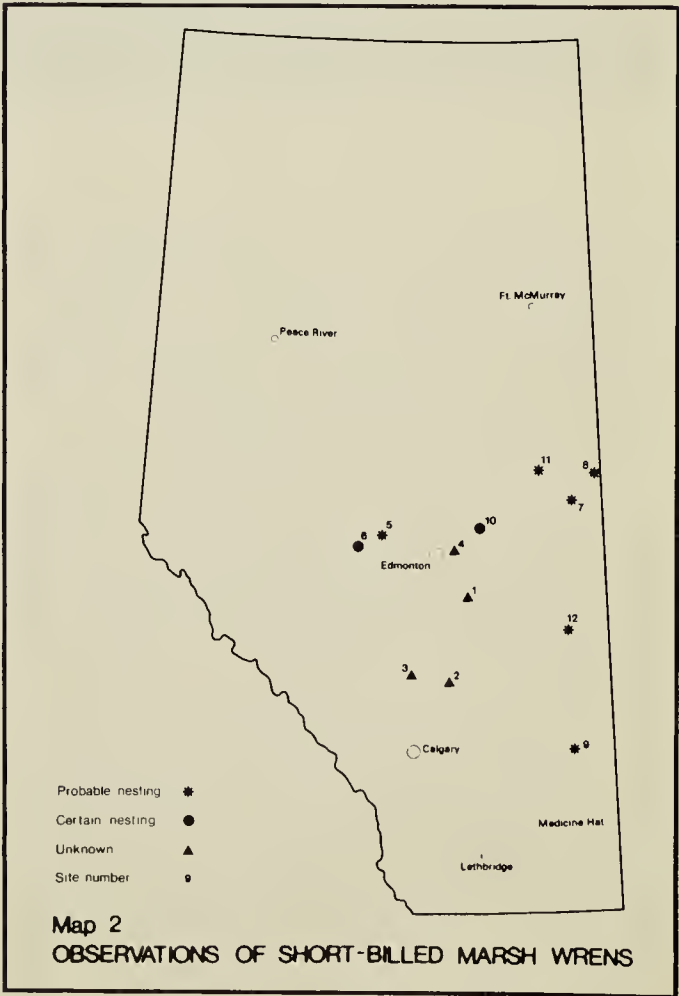
again heard in the same area.

Site 15. The Lakeland area west of Cold Lake provided additional observations for the summer of 1977. Two rails were heard in a *Betula pumila*/sedge fen on May 29, one mile south of Elinor Lake. On June 7, about 10 miles south of Wolf Lake, several birds were heard by Nordstrom in a grass/sedge marsh with scattered willow.

SHORT-BILLED MARSH WREN (Map 2). "A rare vagrant".<sup>14</sup>

Site 1. Mr. A. Twomey collected a specimen on September 19, 1927, six miles south of Camrose in the Battle River Valley.<sup>4</sup> The bird was in the company of migrating warblers. This was the first known record of the species in Alberta.

Sites 2, 3, 4, 5. Salt and Wilk report sight records from Huxley, Innisfail, Elk Island National Park, and Glenevis.<sup>15</sup> It is suspected that they nested near Glenevis.







*Typical Short-billed marsh wren habitat south of Wolf Lake*

*W. Nordstrom*

Site 6. J. and E. Wade observed a pair nesting in a marsh west of Gainsford (pers. comm.). The nest contained six young in June, 1970. Photographs and a 16mm movie were taken of them with their young.

Site 7. On July 3, 1972, W. C. Weber observed a Short-billed Marsh Wren singing near Bonnyville in a dry sedge meadow with scattered clumps of willows.<sup>24</sup>

Site 8. C. Wallis and W. Smith heard three singing males in a sedge marsh to the northwest of Cold Lake town (English Bay area) during the evening of June 5, 1976 (Alta. Ornith, Rec. Comm.). On June 9, 1976, W. Smith, A.

Gregg and W. Nordstrom heard one singing male in the same location. During the evening and night of June 11, 1976, a singing male was heard in a sedge/grass/willow marsh-fen habitat on the south side of Cold Lake by W. Smith and A. Gregg (pers. comm.). During the night of July 8, in a marsh at the south end of Long Bay (Cold Lake) two singing males were heard. These birds were probably breeding.

Site 9. A singing male was heard on June 29, 1976, about 20 miles south of Cereal. Habitat: sedge meadow. On July 4, a bird was heard in the same location (A. Smith and D. Whitfield, pers. comm.).

Site 10. During July, 1976, A. Smith





*Short-billed marsh wren tending to her young near Gainsford, Alberta* E. L. Wade

observed several Short-billed Marsh Wrens in the Lamont area: 10 miles southeast — three singing males were observed July 15; 5 miles east — four wrens observed July 16; two singing males seen July 18; and an adult feeding two young were photographed on July 28.

Site 11. Several were heard by Nordstrom in the Lakeland area during the summer of 1977. It seems highly probable that these wrens breed there in suitable habitat. a) May 31, June 7: about 10 miles south of Wolf Lake in a grass/sedge marsh with scattered willow, one bird was heard on May 31, and two on June 7. b) June 6: Many wrens were heard in the large

grass/sedge fen at the south end of Cold Lake. c) July 4: About nine miles southwest of Wolf Lake several wrens were heard in a glacial meltwater channel characterized by a semi-open stand of willows and alders with an understory of grasses and sedges. d) July 7: Several wrens were heard in a grass/sedge meadow with willows about three and one half miles west-northwest of Shaw Lake. e) July 13: One bird was heard in a grass/sedge marsh about four miles southwest of Elinor Lake.

Site 12. C. Wallis saw two wrens about two miles southeast of Dixon Lake north of Czar. Habitat: sedge/willow meadow.



BLACKBURNIAN WARBLER (Map 3).  
 "Breeds locally in central Alberta".<sup>14</sup>

Site 1. An adult Blackburnian Warbler was collected near Edmonton in 1917; it is in the University of Alberta Zoology Museum. No other data is available.

Site 2. Taverner collected a specimen from the High River area on June 17, 1931. It is in the National Museum of Canada.<sup>22</sup>

Site 3, 4. Near St. Albert, W. R. Salt observed a male Blackburnian, possibly a migrant, on May 13, 1939. Blackburnians were also observed by G. Pegg throughout the summer near Glenevis until 1956. Habitat: mature spruce.<sup>13</sup>

Site 5. D. Boag collected an adult male Blackburnian near Grand Center on June 9, 1959 (University of Alberta Zoology Museum). He heard several other males in the same mature spruce stand.

Site 6. E. Jones observed a singing male west of Ellerslie on June 22, 1964

in mature spruce woods. It probably was on territory.<sup>11</sup>

Site 7. In the Skeleton Lake area Blackburnians have been observed on territory in mature coniferous forests.<sup>23</sup>

Site 8. This warbler is a rare accidental in Calgary.<sup>1</sup>

Site 9. On the south side of Pinehurst Lake on June 20, 1974, the Greenlees observed an adult male and female in a small stand of large white spruce (Prov. Mus. records).

Site 10. J. Keizer and R. Burns saw several Blackburnian Warblers in mixed woods around Touchwood Lake on July 6, 1976.

Site 11. W. Smith, W. Nordstrom and A. Gregg observed Blackburnians quite regularly on the south end of Cold Lake on June 8-9, July 5, and August 16, 1976. Habitat: mature mixed woods, preferred coniferous stands. These birds probably nested. On May 30, 1975, this species was observed there by G. Greenlee and M. Hennie.

Site 12. W. Nordstrom observed several Blackburnians around Wolf Lake on June 1, 1977 — one bird; June 9 — one; and July 5 — four. All were mature males in mature spruce and mixed woods.

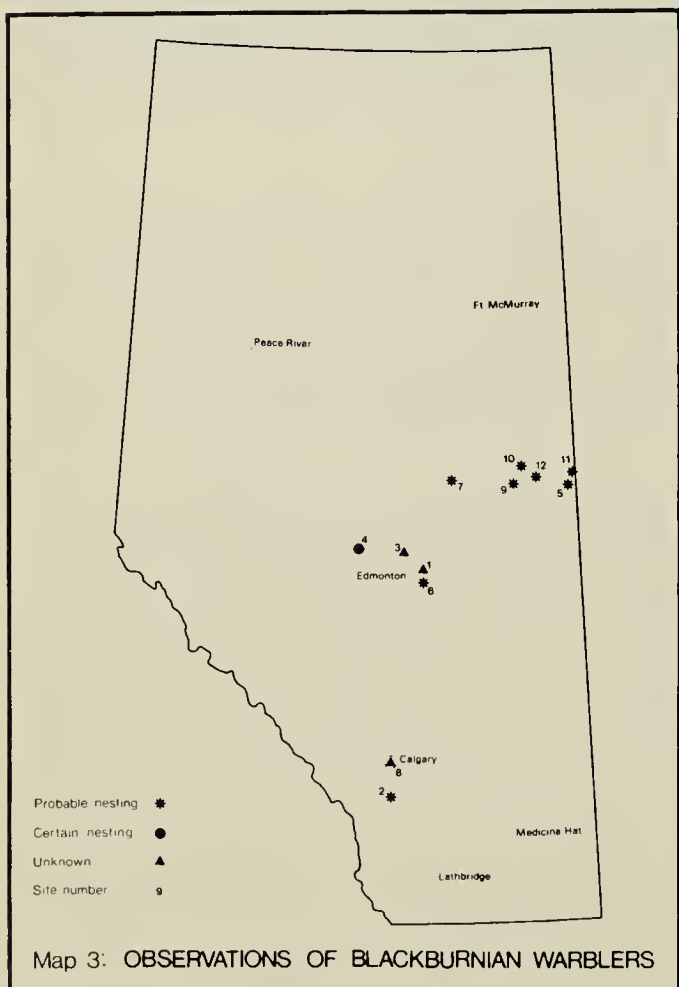
CHESTNUT-SIDED WARBLER (Map 4).  
 Few records in Alberta.<sup>14</sup>

Site 1. This warbler was first recorded by T. E. Randall near Boyle on May 20, 1934. On July 4, he found a nest with young in the same area.<sup>15</sup>

Site 2. In early May of 1935, T. E. Randall observed five Chestnut-sided Warblers near Fawcett.<sup>15</sup>

Site 3. On August 8, 1938, M. Cole observed a small flock, possibly migrants, in Red Deer.<sup>3</sup>

Site 4. Bent states that a specimen was taken at Red Deer but no further information is available.<sup>2</sup>





and Dr. Henderson reported an immature bird on August 20, 1973, at Jenner Ferry in valley scrub along Red Deer River (Prov. Mus. records).

Site 11. On June 4, 1974, L. Butot saw a male in a weeping birch outside her residence in Calgary (Prov. Mus. records).

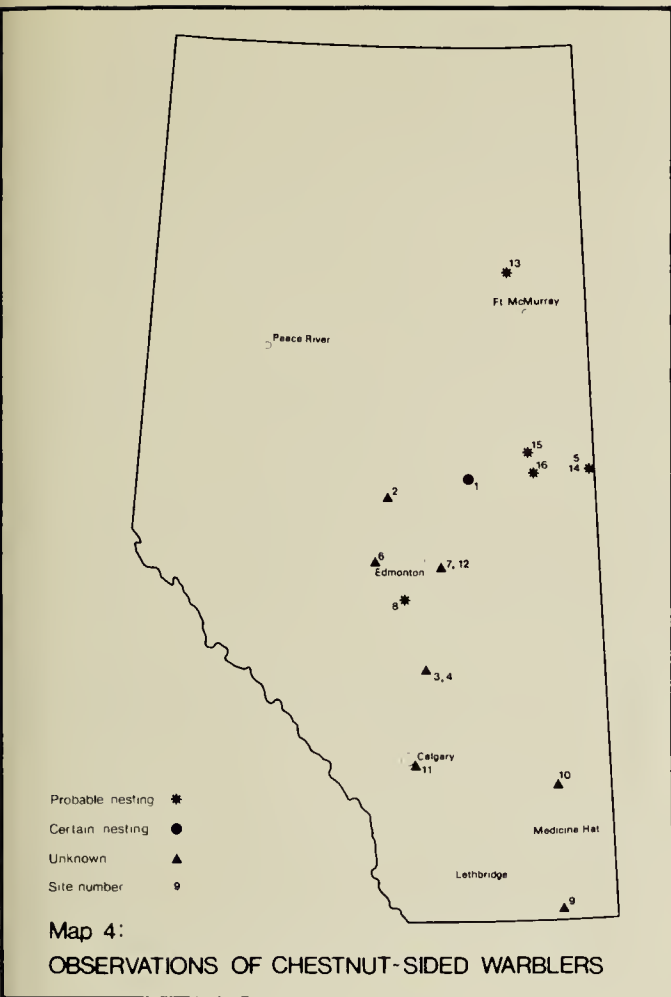
Site 12. This warbler was observed in Kinsmen's Park, Edmonton, by A. Smith on August 25, 1975. It was an immature and probably a migrant (pers. comm.).

Site 13. P. Sharp and W. Richardson reported this species south of Horseshoe Lake in 1975 — one bird on August 17 and four on September 8. They suggest the breeding range may include northern Alberta.<sup>18</sup>

Site 14. In the Cold Lake-Ethel Lake area between June 5-11 and on July 5, 1976, more than 16 observations of this warbler were recorded by C. Wallis, W. Smith and W. Nordstrom. The most seen in any one day was eight singing males and three females. Habitat: mature aspen with dense understory of hazel. G. Greenlee and M. Hennie also reported this species in the area on May 29, 1975.

Site 15. An adult male was collected five miles north of Touchwood Lake on July 7, 1976 by R. Burns and J. Keizer in aspen/alder habitat (Prov. Mus. record).

Site 16. Five adult male Chestnut-sided Warblers were observed in various locations throughout the Lakeland area during the summer of 1977 by W. Nordstrom. It is suspected they breed in the area. a) May 27: two birds seen in mature aspen with hazel and dogwood understory on west side of Ironwood Lake. b) May 30: two birds observed in mature mixed woods west of Touchwood Lake. c) June 1: one bird seen south of Wolf Lake in semi-open aspen with hazel and dogwood understory.



Site 5. W. Haras reported this species from north of the French Bay campsite, Cold Lake, for June 29, 1962 (Prov. Mus. records).

Site 6. One bird was observed by R. Health near Lake Wabamun on September 20, 1970. It was probably a migrant.<sup>11</sup>

Site 7. The first Alberta specimen was collected by Mrs. Blades on May 31, 1972, beneath her window in Edmonton. It was an adult male and probably a migrant (Prov. Mus. records).

Site 8. W. R. Salt collected an adult male and heard others near Pigeon Lake on June 15, 1972 in mature, fairly open aspen forest.<sup>13</sup>

Site 9. Eleven miles west of One Four in the Milk River valley a male Chestnut-sided Warbler was observed on May 29, 1973, by G. Greenlee in mature willows and other dense underbrush (Prov. Mus. records).

Site 10. E. Jones, G. Jones, C. Newell



Careful observation by naturalists in eastern Alberta, particularly, the east-central region, should provide additional information on breeding ranges and habits for the four species discussed above. Availability of proper habitat is a limiting factor to their distribution. Draining, filling, cutting, agricultural operations, and other modifications to wetlands and forests in this area have undoubtedly diminished suitable habitat for these birds. It is most important that we recognize this value of each habitat in order to ensure the continued success of this portion of Alberta's fauna.

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<sup>3</sup>COLE, M.P. 1939. Bird notes from Red Deer, Alberta. Canadian Field-Natur. 53:12.

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Canadian Field-Natur. 60:123-131.

<sup>11</sup>SADLER, T. S. and M. R. MYRES. 1976. Alberta birds 1961-1970, with particular reference to migration. Prov. Mus. of Alberta. Occas. Paper No. 1. 304pp.

<sup>12</sup>SALT, W. R. 1972. Western records of the chestnut-sided warbler. Canadian Field-Natur. 86:390-391.

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<sup>14</sup>SALT, W. R. and J. R. SALT. 1976. The birds of Alberta. Hurtig Publishers, Edmonton. 498pp.

<sup>15</sup>SALT, W. R. and A. L. WILK. 1958. The birds of Alberta. Dept. of Economic Affairs, Gov. of Alberta, Queen's Printer, Edmonton.

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<sup>19</sup>SOPER, J. D. 1942. The birds of Wood Buffalo Park and vicinity. Northern Alberta and District of MacKenzie, N.W.T., Canada. Trans. Roy. Can. Inst. 24:19-97.

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<sup>21</sup>TAVERNER, P. A. 1919. The birds of the Red Deer River, Alberta. Auk 36: 1-21, 248-265.

<sup>22</sup>TAVERNER, P. A. 1934. Birds of Canada. Nat. Mus. Canada Bull. 72:1-445.

<sup>23</sup>TURNER, R. W. 1965. Migration in the Edmonton area, fall 1965. Calgary Bird Club Bull. 43:6-7.

<sup>24</sup>WEBER, W. C. 1974. More great-crested Flycatchers and Short-billed Marsh Wrens in Alberta. Blue Jay 32(4):230-233.



# NOTES ON BIRDS AT WADDY LAKE, SASKATCHEWAN JULY 1977

D. M. SECOY, University of Regina, and E. MAW, University of Alberta

During the summer of 1977 funds from the Saskatchewan Museum of Natural History and the University of Regina President's NRC fund enabled D. M. Secoy of the Department of Biology, University of Regina, to send a summer research student, Eric Maw, to the Wollaston Lake area of northern Saskatchewan. While there, he collected plant and insect specimens, mapped the plant communities around the Boland Lake base camp, and took notes on the avifauna. The reports on this work are being prepared. He also visited a number of other lakes in the vicinity. On July 18-21, he flew into Waddy Lake (56° 11' N 103° 52' W), approximately 160 km south of Wollaston Lake and 30 km west of Southend. Since this lake is not in the Wollaston area and had 9 of 23 species of birds not noted in the Wollaston area, they are here discussed separately. The birds reported can be compared to other accounts of birds in the northern half of Saskatchewan.<sup>1 10</sup> None of the areas discussed in these papers are very close to Waddy Lake, but are from the general area of the boreal forest.

Waddy Lake is small, divided into an upper and lower portion by a narrows. The vegetation in the moister areas, such as along the margins of the lake and streams leading into it or in the narrows between the upper and lower portions, have spruce mixed with birch, aspen and alder. The immediate edges of the water are lined with scrub willow. Low, wet areas often have low willow stands in the shallows and *Equisetum* and *Carex* stands in the area of rooted aquatics. Drier areas, such as

the upper slopes of the lake margin, have a greater percentage of spruce, with some birch or alder. The ground is covered with mosses and lichens, with low-growing or prostrate broad-leaved shrubs (blueberry, wild rose, bearberry, Labrador tea, etc.) with grasses and rushes near the water.

## Species Accounts

**COMMON LOON.** A single bird was seen on the lake on July 18.

**SPRUCE GROUSE.** Two males were seen separately on July 20, in a dense spruce woods.

**RUFFED GROUSE.** Two females, one feeding on unripe blueberries and one leading four downy chicks, were seen in aspen brush along the east side of the lake.

**BLACK TERN.** One was skimming insects off the surface of the lake on the afternoon of July 19.

**GREAT HORNED OWL.** On July 20, one was heard about noon in a spruce-birch-willow woods along a stream valley. Later in the afternoon, one was seen in a dense spruce-alder woods. This bird was chased and harrassed by a pair of Black-backed Three-toed Woodpeckers.

**COMMON NIGHTHAWK.** On July 20, these birds were heard over the campsite on the lake edge, from 1800 through the evening.

**BELTED KINGFISHER.** On July 18, kingfishers were seen several times flying along a stream bordered by spruce, birch and alder, near its entrance into the lake. On July 20, two nest burrows, one active and one





*Gray Jay*

Wayne Lynch

abandoned, were found about 1 km up this stream in a pile of sand and boulders pushed up during the building of a winter road.

**YELLOW-BELLIED SAPSUCKER.** On July 19, a single bird was seen feeding in the taller birches near the narrows between the upper and lower lakes. On July 21, an adult with three immatures were feeding in a birch-spruce grove along a massive rock outcrop along the lake shore. All of the larger birches in the area showed signs of woodpecker feeding activity.

**BLACK-BACKED THREE-TOED WOODPECKER.** A pair were seen on July 20, in a dense spruce-alder woods, where the female was feeding in live spruce trees. Both were calling continuously, apparently in response to

the presence of a Great Horned Owl, which one of them was later seen chasing.

**LEAST FLYCATCHER.** Two males were calling from the tops of dead birches in dense birch-alder brush on the east side of the lake.

**GRAY JAY.** A single bird was seen on July 20, in the top of a sentinel spruce in a willow swamp.

**COMMON RAVEN.** A single raven flew over the lake near camp on the evening of July 18.

**WINTER WREN.** A single male sang and gave alarm notes from among the exposed roots of over-turned spruce and birch, the lower branches of willow, and the ground in a closely grown wooded area in a stream valley.



The bird stuck very close to the spot and could be closely approached before moving (to 3 m), apparently indicating a nest nearby.

**GOLDEN-CROWNED KINGLET.** Three individuals, two females and a male, were seen and heard in separate spruce groves along the lake margins during the afternoon of July 20.

**RUBY-CROWNED KINGLET.** Ruby-crowned Kinglets, adult and young, were seen at several places around the lake, always in spruce thickets or woods. One family group of female and four fledged young were seen, as well as a pair and a single male.

**TENNESSEE WARBLER.** A single male was seen singing from a birch in a birch-spruce woods along a water course.

**YELLOW-RUMPED WARBLER.** Both adults and young were seen. A pair, the female with sawfly larvae in her mouth and the male with mayfly larvae and geometrid caterpillars, were disturbed in a spruce-alder woods on the slope of the lake margin. Two immatures were seen flycatching in short flights from the willows and birch in a willow swamp. On July 20, a male was seen picking insects off the branches of a black spruce.

**COMMON GRACKLE.** A single bird was seen flying along the shoreline of the lake early on the morning of July 20.

**DARK-EYED JUNCO.** Juncos were seen twice. An adult was feeding in a spruce in a spruce-alder woods on the drier portion of the shore of the lake. An immature was seen the next day calling from a dead spruce along the edge of the lake.

**CHIPPING SPARROW.** A pair were seen in a dense spruce-alder thicket on the afternoon of the 20th.

**LINCOLN'S SPARROW.** One bird was feeding in the branches of scrub

willows along the margins of an *Equisetum* marsh.

**SWAMP SPARROW.** An adult and an immature were seen in the alders along the lake margin. Another, single bird was seen later the same day in the willows of a willow marsh.

**SONG SPARROW.** Single birds were seen feeding in the underbrush along a stream feeding into the lake and in birches along the narrows between the two portions of the lake.

We wish to thank Dr. J. Lewry, Department of Geology, University of Regina, for allowing us to be part of his camp during the summer, and for providing transportation.

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<sup>2</sup>DAVIS, D. W. and W. H. BECK. 1968. Additional bird species for Cree Lake. *Blue Jay* 26(4):179.

<sup>3</sup>ERSKINE, A. E. 1974. Off into the wet green yonder: birds and plants of a boreal bog. *Blue Jay* 32(1):33-37.

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<sup>5</sup>NERO, R. W. 1963. Birds of the Lake Athabaska region, Saskatchewan. Spec. Pub. 5, Sask. Nat. Hist. Soc., Regina. 143 pp.

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<sup>8</sup>MOWAT, F. M. 1947. Notes on the birds of Emma Lake, Saskatchewan. *Can. Field-Nat.* 61:105-115.

<sup>9</sup>RANDALL, T. E. 1962. Birds of the Kazan Lake region, Saskatchewan. *Blue Jay* 20(2):60-72.

<sup>10</sup>SECOY, D. M. In press. Some notes on the birds of North Central Saskatchewan, July, 1976. *Blue Jay*.



# RED-TAILED HAWKS FLEDGE YOUNG FROM ARTIFICIAL NEST BOX

LORNE SCOTT, Box 995, Indian Head, Saskatchewan S0G 2K0

Eleven years ago I began setting out wooden nest box structures with the objective of enticing Great Horned Owls to nest in them. In 1969, I was thrilled to discover a pair of Red-tailed Hawks occupying the first box that I had set out.<sup>1</sup>

Being young and inexperienced, I climbed up to the nest box to discover the Red-tails were in the process of nest building. They deserted the nest and I regretfully learned that Red-tailed and Swainson's Hawks will readily abandon their nests if people climb up to them during the construction or incubation period.

Red-tailed Hawks were not observed at any nest boxes during the next eight years. I had pretty well given up any hope of again finding Red-tails using

one of the nest boxes, especially in view of the fact that their numbers have continued to decline during the 1970's in the Indian Head area.

During the evening of May 26, 1978, while cultivating summerfallow around an aspen bluff, I casually glanced up at a previously empty box in a poplar tree. To my utter surprise, the distinct outline of a hawk's head could be seen above the edge of the box. Because it was late in the evening, I made no attempt to stop and identify the hawk.

The next day while working near the nest site the bird flushed from the nest and was identified as a Red-tailed Hawk.

By June 21, a fledgling could be seen

*Red-tailed Hawk in artificial nest box*

*Lorne Scott*







*Red-tailed Hawk*

*Lorne Scott*

peering over the edge of the nest and, on June 28, I climbed up to the nest and banded the single young and photographed it in the nest. The young Red-tail appeared to be between three and four weeks of age. Later in July it was observed flying in the area.

The nest box is made of plywood and is 20 inches square with sides five inches high. It is about 18 feet above the ground in a crotch between the trunk and a main branch of a large aspen poplar tree. Surrounding trees help to conceal the nest from the outer edge of the bluff.

Three years ago when I erected the nest box I placed dead twigs and dry bark in the box to prepare a nest for Great Horned Owls. The artificial site was not used until the Red-tails took up occupancy.

During their nesting activities the Red-tailed hawks brought many green aspen twigs with leaves to the box and

placed them around the outer edge of the nest. On June 28, some of the twigs were old with dead leaves while others appeared fresh and recently brought to the nest.

In 1976 a pair of Red-tailed Hawks (perhaps the same pair as used the nest box) built a nest about 100 yards from the nest box. They did not fledge any young and were not observed in the area during 1977. In the spring of 1977, a pair of Great Horned Owls raised three young in the Red-tail's nest and in 1978, they again used the Red-tail's nest, raising two young.

In our part of southeast Saskatchewan Great Horned Owls are very dependent on old Red-tailed Hawk nests as nesting sites. The close proximity at which the two species nest would indicate that they are quite compatible.

<sup>1</sup>SCOTT, L. 1970. Great horned owls occupy artificial nesting site. *Blue Jay* 28(3):123



# SABINE'S GULLS IN SOUTHEASTERN MANITOBA, FALL 1977

PETER TAYLOR, P.O. Box 597, Pinawa, Manitoba R0E 1L0

During fall 1977, three separate records of the Sabine's Gull, probably involving four individuals, were made in southeastern Manitoba. Since there are only two previous records of this species in southern Manitoba, the 1977 sightings are described in detail.<sup>1 2</sup>

On September 4, 1977, at about 3:30 p.m., I observed an adult Sabine's Gull in breeding plumage, feeding with about 100 Bonaparte's Gulls at the Lac du Bonnet sewage lagoons. Rudolf Koes and Richard Knapton joined me about 6 p.m., and all three of us observed the bird for about 20 minutes as it swam about, picking insects from the surface of the water. It was photographed down to about 25 metres. It was rather tamer than the Bonaparte's Gulls and appeared relatively undisturbed by our presence. It was not seen again on several subsequent visits, however, although the numbers of Bonaparte's Gulls remained fairly stable for about two weeks.

At about 9 a.m. on September 25, 1977, Richard Knapton and Rudolf Koes observed two immature Sabine's Gulls with about 30 Ring-billed Gulls on a patch of water in a muddy field beside Highway 8 about 5 km north of the Winnipeg Perimeter Highway. When Knapton attempted to photograph the birds, all of the gulls took flight. The Ring-bills landed again nearby, but the two Sabine's Gulls made two passes over the standing water, then gained altitude and disappeared southward. The day was wet, with low cloud, and it is possible that these two birds had been grounded by poor weather conditions and, on being disturbed, continued

migrating.

The third record involved an adult bird in breeding plumage. It was seen by David Hatch on four occasions and once by Doug Kyle between October 17 and 25, 1977, on a pond near Stony Mountain Penitentiary, about 24 km north of Winnipeg.

All the sightings described were made by experienced observers at distances down to 25 metres, using optical equipment up to 25x magnification, and all pertinent field marks were noted.

According to Godfrey, the breeding range of Sabine's Gull includes coasts and islands of much of the Canadian arctic, and migration to the South American winter range occurs mainly along the Pacific coast.<sup>3</sup> He describes it as a rare migrant in the Canadian interior, with records in every province from British Columbia to New Brunswick. The status of the species in Manitoba and Saskatchewan was reviewed by Copland in 1969.<sup>1</sup> Although small numbers are seen regularly in June at Churchill<sup>4</sup>, and it has been suggested that some birds may reach Hudson Bay after an overland flight, there are only two previous records for southern Manitoba. On October 4, 1945, a bird in winter plumage was observed by Soper at Lake Audy in Riding Mountain National Park.<sup>7</sup> A Sabine's Gull was present on the Water Diversion Channel at Portage la Prairie from October 19 to 24, 1970<sup>2</sup>. It was reported by Harold McPherson, then stationed at the Portage la Prairie RCAF base, and its identity was confirmed by Jim Carson and Herb Copland of the Manitoba Museum of





*Sabine's gull (on right) at Lac du Bonnet*

*Peter Taylor*

Man and Nature on the 22nd. On June 20, 1969, an adult was observed by Copland *et al* at Madge Lake, Saskatchewan, only four miles west of the Manitoba border.<sup>1</sup>

The three records described here comprise part of an unusually heavy inland movement of Sabine's Gulls in western North America in fall 1977. Altogether, 10 records, including these three, were made in the three Prairie Provinces<sup>6</sup>, while the Mountain West Region of the U.S.A. had the most Sabine's Gull sightings ever<sup>5</sup>, with a total of 18 birds seen from Wyoming and Colorado to the Nevada-California border. This unprecedented concentration of sightings is not readily explained in terms of weather conditions, since the records extend over two months, but it tends to support the suggestion that a significant number of birds migrate overland.<sup>4</sup>

I wish to thank Herbert W. R. Copland for information about

previous records, and David R. M. Hatch, Richard W. Knapton and Rudolf F. Koes for information and helpful suggestions.

<sup>1</sup>COPLAND, H. W. R., 1969. A Sabine's Gull in southern Saskatchewan. *Blue Jay* 27:146-147.

<sup>2</sup>COPLAND, H. W. R. Personal communication.

<sup>3</sup>GODFREY, W. E., 1966. The birds of Canada. *Nat. Mus. Canada Bull.* 203, Queen's Printer, Ottawa. 428 pp.

<sup>4</sup>JEHL, J. R., Jr. and B. A. SMITH, 1970. Birds of the Churchill Region, Manitoba. *Manitoba Mus. Man and Nature Spec. Publ.* No. 1, Winnipeg. 87 pp.

<sup>5</sup>KINGERY, H. E., 1978. Mountain West. *American Birds*, 32:235-239.

<sup>6</sup>SERR, E. M., 1978. Northern Great Plains Region. *American Birds*, 32:220-223.

<sup>7</sup>SOPER, J. D., 1953. The Birds of Riding Mountain National Park, Manitoba, Canada. *Can. Wildl. Serv., Wildl. Manage. Bull.* No. 6 Ser. 2.



# RARE WATERFOWL IN SOUTHERN MANITOBA, 1977

RICHARD W. KNAPTON, 337 - 99 Dalhousie Drive, Winnipeg, Manitoba R3T 3M2; RUDOLF F. KOES, 135 Rossmere Crescent, Winnipeg, Manitoba R2K 0G1 and PETER TAYLOR, P.O. Box 597, Pinawa, Manitoba R0E 1L0

Twelve species of waterfowl are considered to occur irregularly in southern Manitoba.<sup>1 2</sup> Of these, the Garganey is an exotic,<sup>4</sup> the Common Eider has not been recorded in southern Manitoba since 1911<sup>2</sup>, and the Ross' Goose has been reported with increasing frequency in recent years to indicate that it is a regular migrant through southern Manitoba. All the remaining species were reported in 1977, some in surprisingly high numbers. The following annotated list gives details of the various sightings.

**TRUMPETER SWAN.** Two were sighted at Oak Lake on October 31, and November 1, by D. R. M. Hatch. The birds, both adults, were heard trumpeting and were seen with a flock of Whistling Swans.

**BRANT.** A. Lindsay reported two Brant, which were associating with Canada Geese, on May 8, at Oak Hammock Marsh, and one was subsequently seen there on May 10, by A. MacLean.

**CINNAMON TEAL.** A male was observed and photographed at Oak Hammock Marsh by many observers after its initial discovery on May 7, by G. Holland. It was last seen on June 4. A male was also observed at Libau by J. Christie on October 6.

**EUROPEAN WIGEON.** A male was seen in the company of a female wigeon on the Red River at Aubigny on April 16, by C. and N. Dixon. The specific identity of the female was not determined. What was possibly the same male was seen at Breezy Point, north of Selkirk, on April 19, by D. R. M. Hatch. On October 2, G. Holland

and G. Grief saw a male in a flock of American Wigeon at Oak Hammock Marsh.

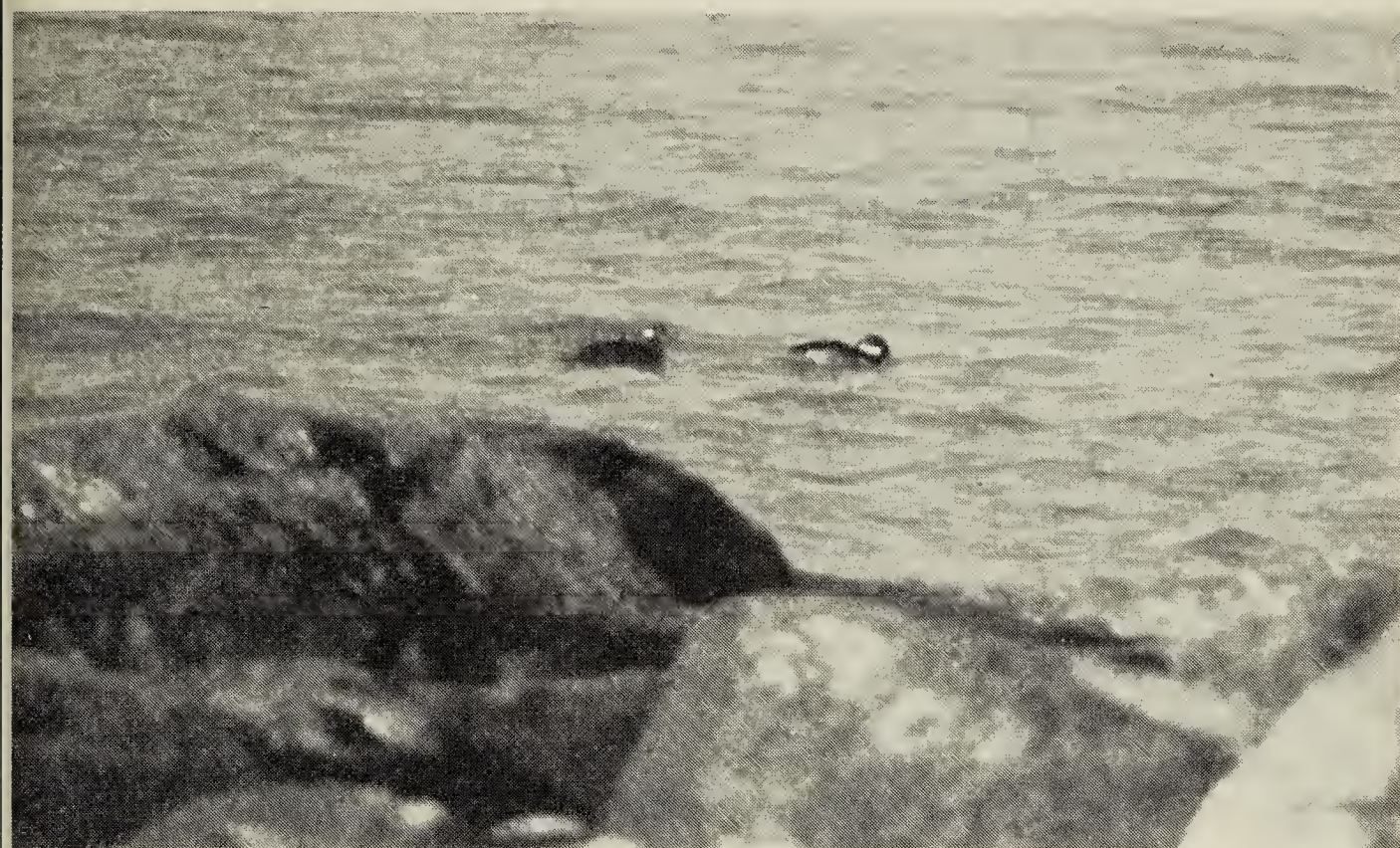
**BARROW'S GOLDENEYE.** A pair was seen with Common Goldeneye along the Red River south of Lockport by L. and J. Holmes on April 17, and what was likely the same pair was seen at Breezy Point on April 19, by D. R. M. Hatch. On October 18, A. MacLean reported a female Barrow's Goldeneye at Clear Lake, Wasagaming. These sightings raise the number of records of this species in southern Manitoba since 1900 to at least eight involving 11 or more individuals.<sup>3</sup>

**OLDSQUAW.** Possibly a regular migrant in southern Manitoba.<sup>6</sup> At least one was seen along the Assiniboine River diversion near Portage la Prairie on April 17, by B. Batt and R. E. Jones.

**HARLEQUIN DUCK.** A female or immature was seen at Victoria Beach on November 12, 13 and 19, by numerous observers after its initial discovery by Peter Taylor. The bird associated with two female Buffleheads and it allowed close approach (15 m) as it dived and loafed close inshore. This is probably the seventh record for southern Manitoba.<sup>5</sup>

**BLACK SCOTER.** This normally scarce species was recorded on three occasions; one at the Pinawa Sewage Lagoons on November 5, (Peter Taylor), two at Oak Lake on November 12, (D. R. M. Hatch), and four at Victoria Beach between November 12 and 19, (many observers). All birds were in female or immature plumage.





*Harlequin and Bufflehead at Victoria Beach*

*Peter Taylor*

**SURF SCOTER.** There were five records of this irregularly reported scoter this year; a male at Seven Sisters Dam on September 4, (R. W. Knapton, R. F. Koes, Peter Taylor), two immatures or females at Oak Hammock on October 22, (G. Holland), five immatures or females at Oak Lake on November 12, (D. R. M. Hatch), one immature or female at Victoria Beach on November 12, (many observers), and an immature male at Victoria Beach on November 19, (G. Holland, many other observers).

It is rather ironic that so many unusual waterfowl were seen in a year when the breeding season for ducks normally resident in the area was poor because of low water levels. No single factor can account for the diversity of unusual waterfowl records since these include wanderers from the western Great Plains (Cinnamon Teal), the east or west coastal areas (Harlequin Duck and Barrow's Goldeneye), or possibly farther afield (European Wigeon). The increase in scoter records is interesting. It may reflect the greater

number of observations at larger lakes (Lake Winnipeg, Lake Manitoba) in late fall, although this may not necessarily be the case as more scoters than usual were also recorded in the same period in southern Saskatchewan (D. R. M. Hatch, pers. comm.). Black and Surf scoters have been recorded annually in southern Manitoba since 1975, and may be regular fall migrants in small numbers through this region.

<sup>1</sup>Field check-list of the birds of south-eastern Manitoba. 1978. Manitoba Naturalists' Society, Winnipeg.

<sup>2</sup>GODFREY, W. E. 1966. The birds of Canada. Natl. Mus. Can. Bull. No. 203, Ottawa.

<sup>3</sup>HATCH, D. R. M. 1971. Barrow's Goldeneye in Manitoba. *Blue Jay* 29:79-83.

<sup>4</sup>KOES, R. F. 1971. The Garganey, a new bird for Manitoba. *Blue Jay* 29:199-201.

<sup>5</sup>McNICHOLL, M. K. 1973. Records of the Harlequin Duck in Manitoba and adjacent regions. *Blue Jay* 31:150-152.

<sup>6</sup>SEXTON, D. A., and M. COLLINS. 1977. Records of the Oldsquaw in southern Manitoba. *Blue Jay* 35:96-99.



# A POSSIBLE RECORD OF COMMON POCHARDS FOR SOUTHERN SASKATCHEWAN

FRANK BRAZIER, 2657 Cameron Street, Regina, Saskatchewan S4T 2W5

Stonybeach Lake is a fairly large body of water about 8 miles north of Belle Plaine. Having no outlets, it is, actually, an extensive prairie slough. At the time of the topographical survey of 1882 it covered about 170 acres of Section 11, Township 18, Range 24 west of the Second Meridian, although the area fluctuates considerably with precipitation.

On the north shore a dugout has been excavated, the spoil being piled on the east and west sides. In 1977 the lake was very high and it had reached beyond the dugout, flooding it and the pasture for a considerable area. Waterfowl and shorebirds abounded.

On June 11, 1977, Elmer Fox and I were exploring the pasture and the slough on the north side. Elmer was investigating the vegetation on top of the eastern spoil bank while I had waded across the flooded area to the south of the dugout to reach a small dry area where a colony of Avocets was nesting. Returning, I heard a strange cry and, turning, saw a pair of ducks which resembled scaup on the dugout. At that moment the hen repeated the cry that first got my attention.

It was a fine day with bright sunshine and little wind. The birds were perhaps a hundred feet away. In my glasses (10x50 power) I noticed the hen's whitish face markings and her unusual bill pattern, all bluish except for the black nail and black base. But the drake! Imagine a Greater Scaup with a brown head and the same kind of bill pattern as the hen. As I stared at them, I mentally went through all the

pochards with which I was familiar — Lesser Scaup? these birds were too large, had rounded heads, and the head colour was wrong; Redhead? right size and shape but the drake's light coloured body (similar to that of a Canvasback) and brown head were radically different from the brownish red head and dark grey body of a Redhead drake which also has a dark bill; Canvasback? head colour close enough but the sloping profile of the head was absent; Greater Scaup? about the right size but wrong head colour and wrong bill pattern; Ring-necked Duck? wrong bill pattern, head colour, body pattern and size.

I called to Elmer but he was out of sight on the far side of the eastern spoil bank and did not hear me, so I waded over to get him. Then we both examined them. The drake had a small patch on its body which suggested to Elmer that molting had begun, but he could offer no solution to the bird's identity.

Back home that afternoon I searched through all my North American bird books, without success. It was not until I opened my old Field Guide to the Birds of Britain and Europe that I found them — a male and female Common Pochard (*Aythya ferina*). Searching further I found the female's voice described as a harsh, growling "kur-r-r" while the female Redhead utters a coarse "kurr-kurr-kurr", much like the female Common Pochard.<sup>3 4</sup>

I was interested to note that Dement'ev et al consider the Redhead and the Common Pochard to be



conspecific, and that Palmer considers the Canvasback to be the nearest in the Nearctic, in total biology, to the Pochard of the Palearctic.<sup>1 4</sup> The species is found over a large part of central and northern Europe and Asia.<sup>4</sup>

I telephoned several birders but, as it was Saturday afternoon, I was unsuccessful in raising anyone; they were, I suppose, all out looking for rare birds. I reached Bob Luterbach on June 12, and he arranged with Frank Switzer (who has a 1000-mm telephoto lens for his camera) to visit Stonybeach Lake on the following Wednesday morning, but, due to prior commitments, they had to be in position very early. While they found two scaups on the dugout which soon flew away, the light was too poor for photography.

Bob Luterbach had pointed out to me that the Common Pochard is the only pochard with a red eye. I discovered from Palmer that the eye is red only in winter, becoming brownish orange in the spring.<sup>4</sup> I returned twice to Stonybeach Lake with a telescope hoping to determine eye colour but, although I found the birds on the dugout each time, I was never able to see them well enough, nor did I ever

see them in flight to check the wing stripe.

Godfrey does not list it for Canada; there are some Alaska records.<sup>2 4</sup>

Neither Elmer nor I got back to the lake again. In the end we were left with our own observations, initially under excellent conditions, except for distance, when we saw two birds which agreed in every detail with the pictures of a male and female Common Pochard.

<sup>1</sup>DEMENT'EV et al. 1952. Birds of the Soviet Union, Vol. 4. Moscow.

<sup>2</sup>GODFREY, W. E. 1966. The birds of Canada. Nat. Mus. Canada, Ottawa. Bull. 203.

<sup>3</sup>HOLLOM, P. A. D. 1962. The popular handbook of British birds. H. F. & G. Witherby Ltd., London.

<sup>4</sup>PALMER, R. S. 1976. Handbook of North American birds, Vol. 3. Waterfowl (Part 2). Yale University Press, New Haven.

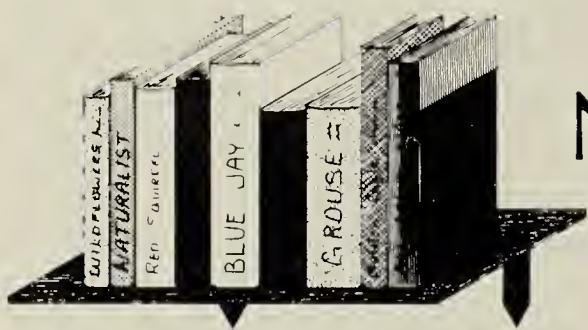
<sup>5</sup>PETERSON, R. T., GUY MOUNTFORT and P. A. D. HOLLOM. 1954. A field guide to the birds of Britain and Europe. Houghton Mifflin Co., Boston.



*A wintery sky*

*J. B. Gollop*





# NATURE LIBRARY

## WORKING FOR WILDLIFE: THE BEGINNING OF PRESERVATION IN CANADA

JANET FOSTER, 1978. University of Toronto Press, Toronto. 283 pp. \$19.95.

Janet Foster's doctoral thesis at York University dealt with the history of the conservation movement in Canada. She dug deeply in archives in Ottawa and Washington and studied the appropriate background literature. Her research forms the basis of this book.

Each topic in turn is developed in a logical and cohesive way, though with overlapping chronology. This is a story of important events and of forgotten men — and much of the early action was in Western Canada.

Foster begins by telling of the pioneer belief in the 'Myth of Superabundance,' challenged as early as 1860 by the drastic decrease in buffalo numbers. We learn of the first National Park at Banff in 1885-87, enlarged as a result of the surveys of George Stewart, who became its first superintendent. We meet Howard Douglas who, as the next superintendent at Banff and later as the first Commissioner of all six parks, introduced the concept of wildlife preservation to our national parks. We learn how Douglas, with the help of a Canadian immigration officer in

Montana, "out-Yanked the Yanks" in purchasing 703 bison from a Mexican halfbreed for \$200.00 a head.

In 1909, a Commission of Conservation was established by the Laurier government and Clifford Sifton was chosen as its chairman. Sifton understood the need for conservation, recognizing that resources were already becoming limited.

The first Forest Reserves and Parks Act was passed in 1911 and resulted in formation of a Parks Branch, headed by James Harkin, who had a mystical belief in natural beauty and wilderness values that was half a century ahead of his time. Heading his Animal Division was Maxwell Graham, who enlisted the help of Ernest Thompson Seton before establishing three small parks for the protection of antelope in 1914 and 1915, and Wood Buffalo National Park for the protection of wood buffalo in 1922.

The appointment of Gordon Hewitt as Dominion Entomologist in 1909 marked the advent of the professional scientist and ushered in a new era of conservation. Bird protection was considered an important part of the Department of Agriculture's work in controlling insects. In 1916, Hewitt negotiated with the American government and with the provincial governments for an international bird protection treaty. He used his contacts with his counterparts in the United States Biological Survey to good advantage. After many delays,



frustrations, near-failures and compromises, agreement was finally reached. With proclamation of the Migratory Birds Convention Act (printed in full in the appendix), Hoyes Lloyd was appointed as Dominion Ornithologist and then as Supervisor of Wild Life Protection. Robie Tufts and Harrison Lewis (and later Dewey Soper) were appointed as migratory bird officers.

With the support of Percy Taverner, who had been appointed as the National Museum's staff ornithologist in 1910, it became possible to achieve federal migratory bird sanctuary status for Bird Rocks, Bonaventure Island, Roche Percee, and Point Pelee, and a country-wide system of sanctuaries. The book ends with this achievement and with the dissolution of the Commission of Conservation by the new Conservative government, soon after the posthumous publication in 1921 of Hewitt's book, *The Conservation of the Wild Life of Canada*.

The problems faced by wildlife today are "far more dangerous and complex than the guns of yesterday." We have made progress but in Canada the early impetus was almost entirely the result of a small coterie of dedicated, enlightened, and far-sighted civil servants. Without the propelling force of men like Stewart, Douglas, Harkin, Graham, Sifton, Hewitt, Lloyd and Taverner, who were far in advance of the public and the politicians, the conservation problems today would be much worse than they are. These are nearly forgotten men, and their achievements and difficulties well deserve the documentation so expertly provided by Janet Foster. — Reviewed by C. Stuart Houston, 863 University Drive, Saskatoon, Saskatchewan S7N 0J8.

## WILD GEESE

M. A. OGILVIE with illustrations by CAROL OGILVIE. 1978. Buteo Books. Box 481, Vermillion, South Dakota. 350 pp. \$25.00.

This book covers the geese of the world, including their ranges in North America, Europe and Asia, with the exception of the Ne-Ne or Hawaiian Goose.

The chapters within are devoted to classification, identification, ecology, breeding, distribution, migration and more.

While well written and easy to understand, it is also very scientific (as a book of this nature should be) and I would guess that the average reader would find some of the chapters on "ecology" and "population dynamics", etc. rather heavy reading unless one were looking for specific information.

Wild geese have always held a fascination for most people. This book which reveals the many marvelous ways that these birds have become adapted for their survival in their often harsh environment, cannot fail to arouse the admiration of the reader even more.

I did not check the charts and maps for accuracy but did notice in the description and distribution of the Pacific White-front that the dot on the map which was supposed to indicate the Kindersley area was actually placed near Estevan. Also the system of using various dashed lines on a map to indicate the distribution of the various species became very confusing where ranges of different subspecies, as with the Canada Goose, overlap.

The black and white illustrations by Carol Ogilvie are beautifully done; in them she has portrayed the charac-



teristics of geese with an accuracy that very few artists achieve. However, the colour illustrations are disappointing, especially of the goslings; it is hard to believe that they were done by the same artist. — Reviewed by *Fred W. Lahrman*, Saskatchewan Museum of Natural History, Regina, Saskatchewan.

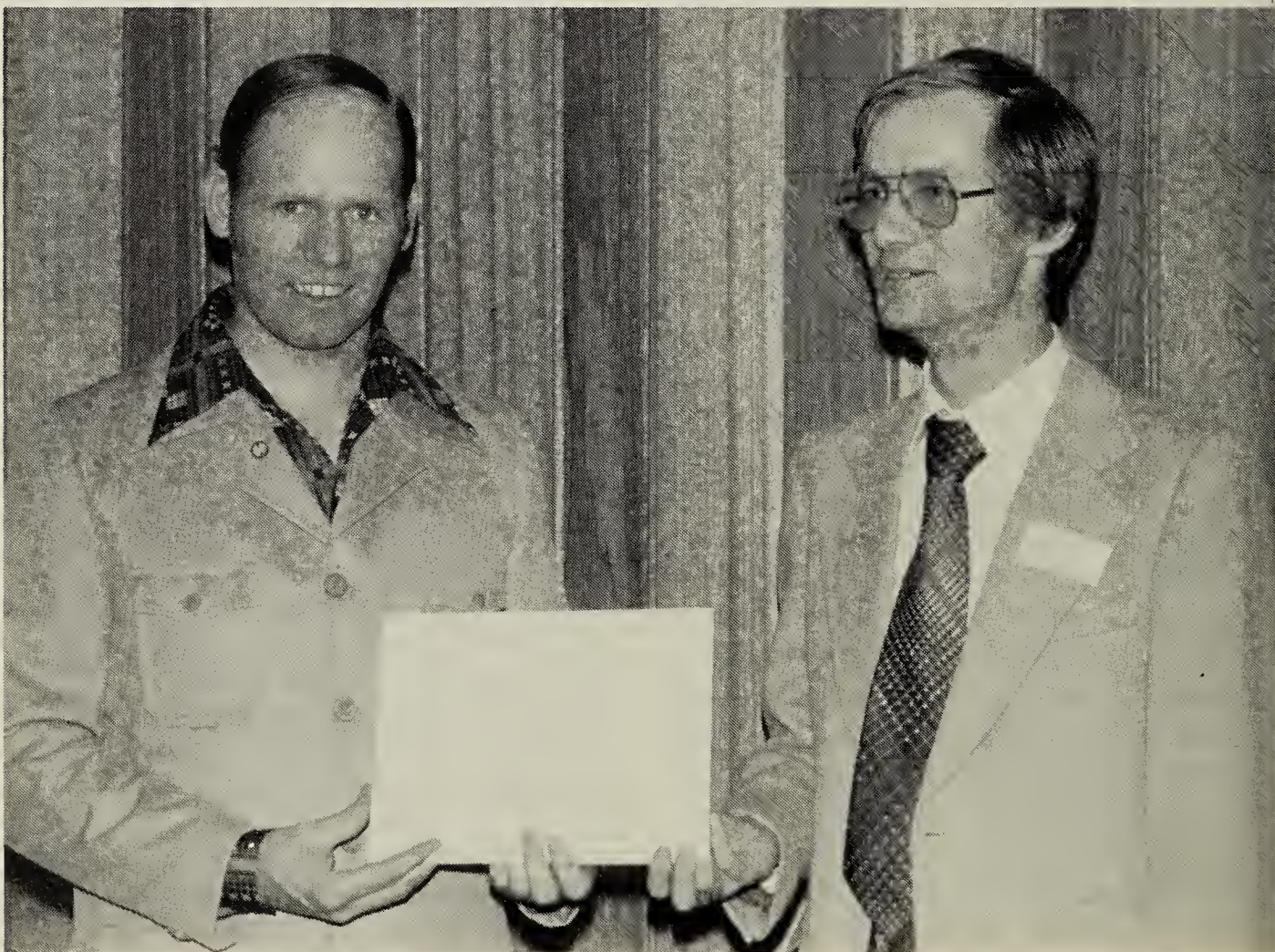
## 1978 CONSERVATION AWARD

Several years ago, a group of farmers who owned parts of a marsh complex near Wawota in southeastern Saskatchewan, known locally as Whitetail Marsh, petitioned the Saskatchewan Department of Agriculture for financial assistance to drain these wetlands. Dumas Flood Control Project, as this drainage

proposal was called, was duly processed by the Department and was well on its way to approval. Fortunately, about one year ago members of the Wawota Wildlife Federation learned of this drainage proposal and resolved to halt it. They wrote to the Minister of Tourism and Renewable Resources demanding action to preserve the marsh for wildlife, and urged their members to do the same. They enlisted the town's support by pointing out that drainage might lower the water table and reduce the water supply to the town wells. They also sent a delegation to appeal to each farmer who had petitioned for drainage.

These approaches were successful. Because of the wildlife values of the marsh, the Department of Tourism and Renewable Resources took a strong stand against drainage. This forced the Department of Agriculture

*Saskatchewan Wildlife Federation President Tom Motta receives SNHS Conservation Award for Wawota Wildlife Federation from Dale Hjertaas Sheina Wait*







Sheina Wait

Robert Kreba receives Cliff Shaw Award from Blue Jay Editor Gary W. Seib

to consult with the land owners who had petitioned for drainage. General support for the drainage scheme no longer existed. The Dumas Flood Control Project was accordingly cancelled last summer.

The Wawota Wildlife Federation is not content to stop there. They are currently attempting, in co-operation with Ducks Unlimited (Canada), to develop the Whitetail Marsh for wildlife to ensure that the Dumas Flood Control Project is not revived in the future.

Mr. Tom Motta, President of the Saskatchewan Wildlife Federation accepted the SNHS Annual Conservation Award on behalf of the Wawota Branch. Their work in preserving Whitetail Marsh has earned the award, and provides a shining example for other groups to

emulate. — Dale Hjertaas, Membership Chairman, 3110 - 7th Street East, Saskatoon, Saskatchewan S7H 1B3.

## 1978 CLIFF SHAW AWARD

The Cliff Shaw Award is presented annually in memory of the second editor of the *Blue Jay*. For 1978, the award was presented to Robert Kreba, a young naturalist on the staff of the Museum of Natural History in Regina.

Bob's article, "Observations of an Eastern Yellow-bellied Racer in captivity", was published in the June, 1978 issue, and tells of his observations and experiences in nursing it back to health and finally returning it to the wild.





## LETTERS

### MARKED WHOOPING CRANES

Whooping cranes have been colour-banded on their breeding grounds in Wood Buffalo National Park, N.W.T., for the second consecutive year. On August 8, 1978, eight juvenile Whooping Cranes were captured by the Canadian Wildlife Service, fitted with 88 mm (3½") tall brightly coloured plastic leg bands and released. Each of the 1978 crop of young whoopers has a single red band with white horizontal stripe. The second colour band (if the bird has one) will be white, blue or orange. The colour bands will be highly visible if the bird is observed under good light conditions.

The purpose of marking Whooping Cranes is to learn their age at sexual maturity, to learn about permanency of the pair bonds after the birds mate, the fidelity to nest sites, longevity, importance of migration stopovers and to learn other biological information about this endangered species.

In 1977 nine young whoopers were banded and seven of them were accounted for during aerial surveys this summer. It marked the first time that known-age yearling Whooping Cranes were located on their summering range.

Anyone observing colour banded whooping cranes is urged to contact E. Kuyt, Canadian Wildlife Service, 9942 - 108 Street, Edmonton, Alberta, T5K 2J5 (phone 425-6860 or 425-5480).

### 1978 SASKATCHEWAN MAMMAL COUNT

Reports of mammals seen during the Christmas Bird Counts will be compiled again this year. When making your Christmas Bird Count, please note the number of each species of mammals seen, and the species of tracks that you can positively identify.

Send the list with your Bird Count by January 12, 1979, at the latest, to: Mrs. Mary I. Houston, 863 University Drive, Saskatoon, Sask. S7N 0J8.

### BIRD NOTES FROM YEARS GONE BY

EDITOR'S NOTE: Some time ago the *Blue Jay* received a letter written in 1923 by Allen C. Atkinson to his sister in Ontario from Wynot, Saskatchewan, where he was teaching. The letter was dated July 26, the season of school holidays and of picnics which he was attending.

"... The best thing at the last picnic, strange to say, was an item not on the program, and consisted of the slow and stately evolutions of a flock of about 60 pelicans at a height of only about 75 feet or so and almost directly overhead. The exhibition lasted several minutes and was distinctly worthwhile. I had often seen them threading the maze of these perfectly timed movements at a distance of a mile or so, and with a brightly shining sun the effect is somewhat startling. You see spots of



glittering white for a few moments and then you see absolutely nothing for a similar period of time, but by watching closely you will see the white points reappear just as quickly and simultaneously as they had disappeared — the rhythm is perfect. They are most ungainly and awkward-looking on the ground, but when mounted they are far from that.

"Another very interesting thing to watch is the gathering of the "prairie chicken"-pintail grouse, on a knoll. It always reminds me of a French minuet — only it is far from quiet, or an initiation service of the K.K.K. Anyway, they advance towards each other with feathers ruffled and head held near the ground, and when their beaks almost touch, one scurries away with short mincing steps and whirring wings to the next one, and so all around. The peculiar thing about it is the fact that they seem to advance and retreat by zig-zag straight lines and everything seems to "go off" as smoothly and with as much gusto as the best ordered dance — and all the time, the din is terrific."

## PHOTOGRAPHER WANTS INFORMATION

I would like to appeal to readers of the *Blue Jay* for assistance in locating sites where mammals may readily be photographed in a natural setting. For example, at this time of year, one might find hibernating bats, winter burrows or nests of mammals, a frozen carcass being visited regularly by carnivores, and so on.

I would be interested in any such situation where the animal can be found with some degree of dependability, particularly at locations within 100 miles or so of Saskatoon. If anyone could help out in this regard, please telephone me at 374-

1392 or write. — Arthur D. Savage, 350 Carleton Drive, Saskatoon, Saskatchewan S7H 4C1.

## LIKES BLUE JAY

I am glad to see the *Blue Jay* hasn't changed much from when my grandfather introduced me to the journal while I was still in grade school. How eagerly I awaited each issue, reading it from cover to cover.

I think it a credit to its editor that we still have a journal scientifically worthy yet very readable. — Ron Jensen, 1027 King Crescent, Saskatoon, Saskatchewan S7K 0N9.

## ENJOYED JUNE ISSUE

I enjoy the *Blue Jay* very much, especially "Birds of Dinosaur Provincial Park, Alberta". In regard to the Song Sparrow in the Annotated List, could it possibly be the Dakota Song Sparrow? I thank Mr. Norbert G. Kondla for his bird article.

The photography is excellent, especially F. W. Lahrman's "A June Thunderstorm". Colour would have given the photograph a more realistic look, especially since lightning comes in shades from pink, yellow, blue, green, off-white, plus solid reds and yellows. Many bolts travel horizontally across the sky. — Mrs. Marie C. Peronne, 10013 Greiner Road, Clarence, New York 14031.

## ERRATA

In the March 1978 issue (Vol. 36 No. 1), on page 44, the authors of "Calgary Bluebird Trail — 1977" should be Harold W. Pinel and John R. Riddell.

In the June 1978 issue (Vol. 36 No. 2), on page 44, Wing-billed Gull should read Ring-billed Gull.



## SASKATCHEWAN NATURAL HISTORY SOCIETY

## Financial Statement — Year Ending September 30, 1978

## INCOME

Memberships (including sales of <i>Blue Jay</i> ) . . .		9,676.47	
Memberships (extra re: supporting and sustaining) . . . . .		<u>2,256.00</u>	11,932.47
Spec. Pub. No. 1 Guide to Sask. Mammals . . . . .	50		
Spec. Pub. No. 2 Birds of Sask. River. . . . .	Out of Print		
Spec. Pub. No. 3 Birds of Regina . . . . .	Nil		
Spec. Pub. No. 4 Blue Jay Index (1942-60) . . . . .	400		
Spec. Pub. No. 5 Birds of Lake Athabasca. . . . .	1700		
Spec. Pub. No. 6 Birds of N.E. Sask. . . . .	1140		
Spec. Pub. No. 7 Birds of Moose Mountain. . . . .	3320		
Spec. Pub. No. 8 Blue Jay Index (1961-69) . . . . .	1800		
Spec. Pub. No. 9 Birds of Rosetown-Biggar . . . . .	12996		
Publication Hours and the Birds . . . . .	Out of Print		
Publication Birds of the Elbow. . . . .	<u>203</u>		
		216.09	
Donations — General . . . . .		1,006.30	
Interest (Savings account and bonds) . . . . .		1,041.83	
Summer Meeting 1978 (Saskatoon) (net) . . . . .		68.50	
Miscellaneous . . . . .		40.00	
Sales from Blue Jay Bookshop . . . . .	8,082.15		
Less: Cost of Sales . . . . .	<u>6,234.20</u>		
Gross Profit (22.9% of sales) . . . . .	1,847.95		
Less: Postage, supplies, etc. . . . .	226.56		
Honoraria . . . . .	<u>648.56</u>		
Net Profit (12% of sales) . . . . .		<u>972.83</u>	<u>3,345.50</u>
			15,278.00

## EXPENSE

Printing of Blue Jay (4 issues) . . . . .		15,996.78	
Advertising and promotion:			
Newsletter (3 issues) . . . . .	2,335.20		
Brochures . . . . .	<u>364.56</u>	2,699.76	
Honoraria (625, 225, 500, 55) . . . . .		1,405.00	
Postage . . . . .		763.87	
Office supplies and stationery . . . . .		328.97	
Office equipment: address plates . . . . .		105.43	
Misc. office and admin. expense . . . . .		253.32	
Annual Meeting 1978 (Saskatoon) (net) . . . . .		177.37	
Summer Meeting 1977 (Yorkton) (net) . . . . .		<u>160.21</u>	21,890.70

EXCESS OF EXPENDITURE OVER INCOME . . . . . 6,612.69

## Statement of Assets and Liabilities at September 30, 1978

## ASSETS

Cash on hand (Bookshop) . . . . .			40.00
Cash in bank (chequing) — SNHS . . . . .		9,503.45	
Cash in bank (chequing) — Bookshop . . . . .		1,368.62	
Cash in bank (savings) — SNHS . . . . .		<u>10,414.02</u>	21,286.00
Canada Savings Bonds . . . . .			5,000.00
Stock on hand (Bookshop) . . . . .			2,969.60
Accounts receivable (411.57 less prepaid orders 99.15) . . . . .			312.40
Deposits with Postal Dept. . . . .			<u>80.10</u>
			29,688.30

## LIABILITIES

Trust Fund re: Sanctuaries and Conservation areas			
Balance at September 30, 1977 . . . . .	4,583.26		
Donation in 1978 . . . . .	<u>25.00</u>	4,608.26	
Big Gully Sanctuary:			
1977 lease and taxes . . . . .	769.58		
Less 1978 donations . . . . .	<u>645.00</u>	<u>124.58</u>	4,483.60
Provincial Grant for special publications . . . . .			6,000.00
Individual donations for special publications . . . . .			954.70
Accounts payable: owing for June, Blue Jay . . . . .		3,778.83	
Estimate for September Blue Jay . . . . .		<u>3,500.00</u>	7,278.80
Owing re: Honoraria (Bookshop) . . . . .			937.00
Owing re: Education Tax . . . . .			2.30

## NET WORTH

Balance at September 30, 1977 . . . . .		16,644.29	
Less deficit for year ending September 30, 1978 . . . . .		<u>6,612.69</u>	<u>10,031.60</u>
			29,688.30



BLUE JAY SUBSCRIPTION AND SNHS RENEWAL FORM

Regular membership (including institutions)	\$10.00
Sustaining membership	20.00
Patrons	30.00
Students and Senior Citizens	5.00

Any amount in excess of \$10.00 is creditable as an income tax deduction and receipts for the excess amount will be mailed upon request. ☐ Income tax receipt required.

**Bulk subscriptions** to schools and to organized junior naturalist groups will be \$10.00 for the first subscription and \$5.00 for each additional subscription to the same address (minimum of 5 subscriptions).

No further *Blue Jays* will be mailed to members in arrears.

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